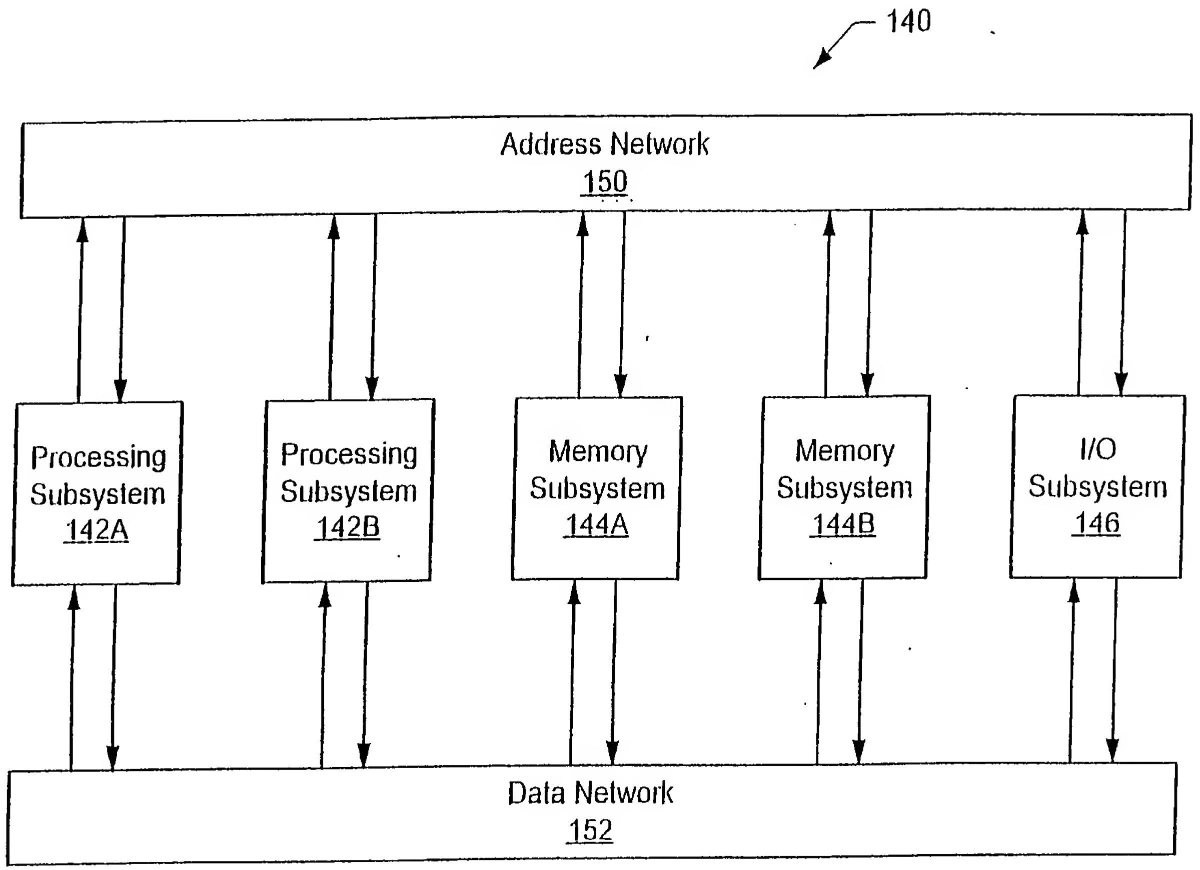

140
Address Network
150
Processing
Subsystem
142A
Processing
Subsystem
142B
Memory
Subsystem
144A
Memory
Subsystem
144B
I/O
Subsystem
146
Data Network
152

Fig. 1

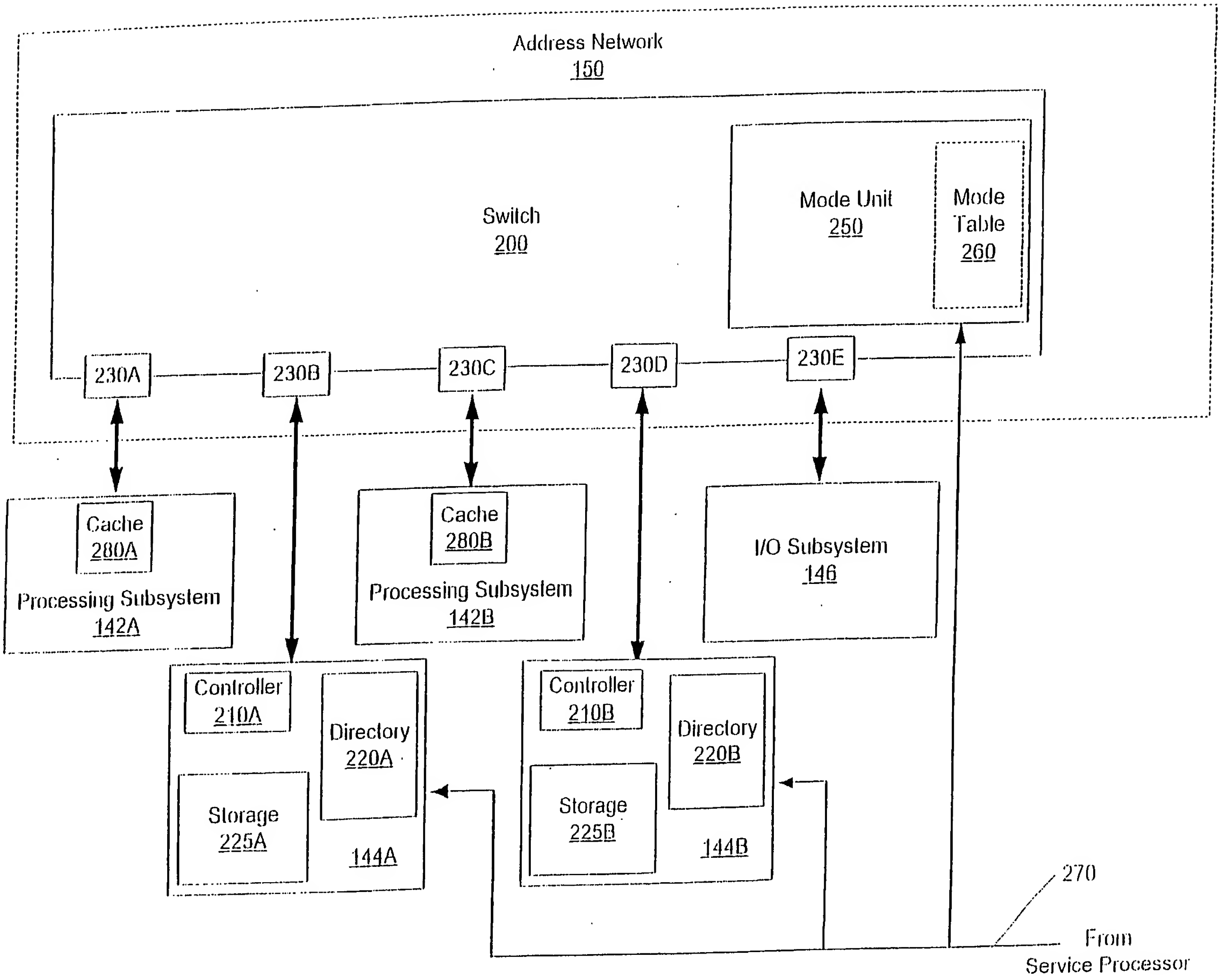
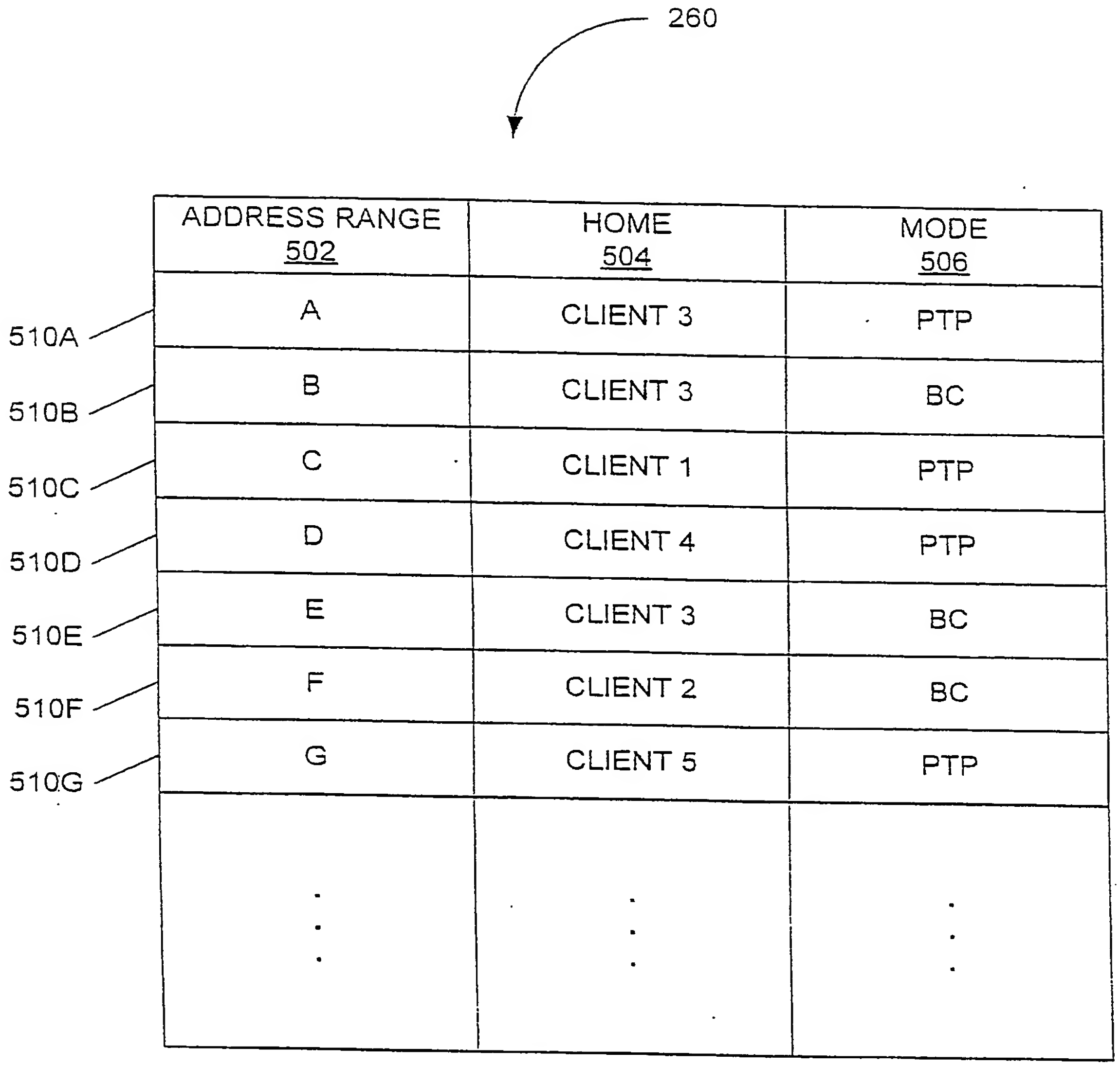

Address Network
150
Switch
200
Mode Unit
250
Mode
Table
260
230A
230B
230C
230D
230E
Cache
280A
Processing Subsystem
142A
Cache
280B
Processing Subsystem
142B
I/O Subsystem
146
Controller
210A
Directory
220A
Storage
225A
144A
Controller
210B
Directory
220B
Storage
225B
144B
270
From
Service Processor

Fig. 2



260
510A
510B
510C
510D
510E
510F
510G

ADDRESS RANGE 502	HOME 504	MODE 506
A	CLIENT 3	PTP
B	CLIENT 3	BC
C	CLIENT 1	PTP
D	CLIENT 4	PTP
E	CLIENT 3	BC
F	CLIENT 2	BC
G	CLIENT 5	PTP
⋮	⋮	⋮

Fig. 3

220A

	ADDRESS 602	CLIENT 1 604	CLIENT 2 606	CLIENT 3 608	CLIENT 4 610	CLIENT 5 612	OWNER 614
620A	Aa	I	I	M	I	I	CLIENT 3
620B	Ab	I	I	M	I	I	CLIENT 3
620C	Ac	I	I	M	I	I	CLIENT 3
620D	Ad	O	I	S	S	I	CLIENT 1
620E	Ae	S	I	S	S	I	NONE
620F	Af	S	I	O	I	I	CLIENT 3
620G	Ag	I	I	I	M	I	CLIENT 4
	⋮	⋮	⋮	⋮	⋮	⋮	⋮

Fig. 4

220B

	ADDRESS 602	CLIENT 1 604	CLIENT 2 606	CLIENT 3 608	CLIENT 4 610	CLIENT 5 612	OWNER 614
620A	Aa	I	I	W	I	I	CLIENT 3
620B	Ab	I	I	W	I	I	CLIENT 3
620C	Ac	I	I	W	I	I	CLIENT 3
620D	Ad	R	I	R	R	I	CLIENT 1
620E	Ae	R	I	R	R	I	NONE
620F	Af	R	I	R	I	I	CLIENT 3
620G	Ag	I	I	I	W	I	CLIENT 4
	⋮	⋮	⋮	⋮	⋮	⋮	⋮

Fig. 4A

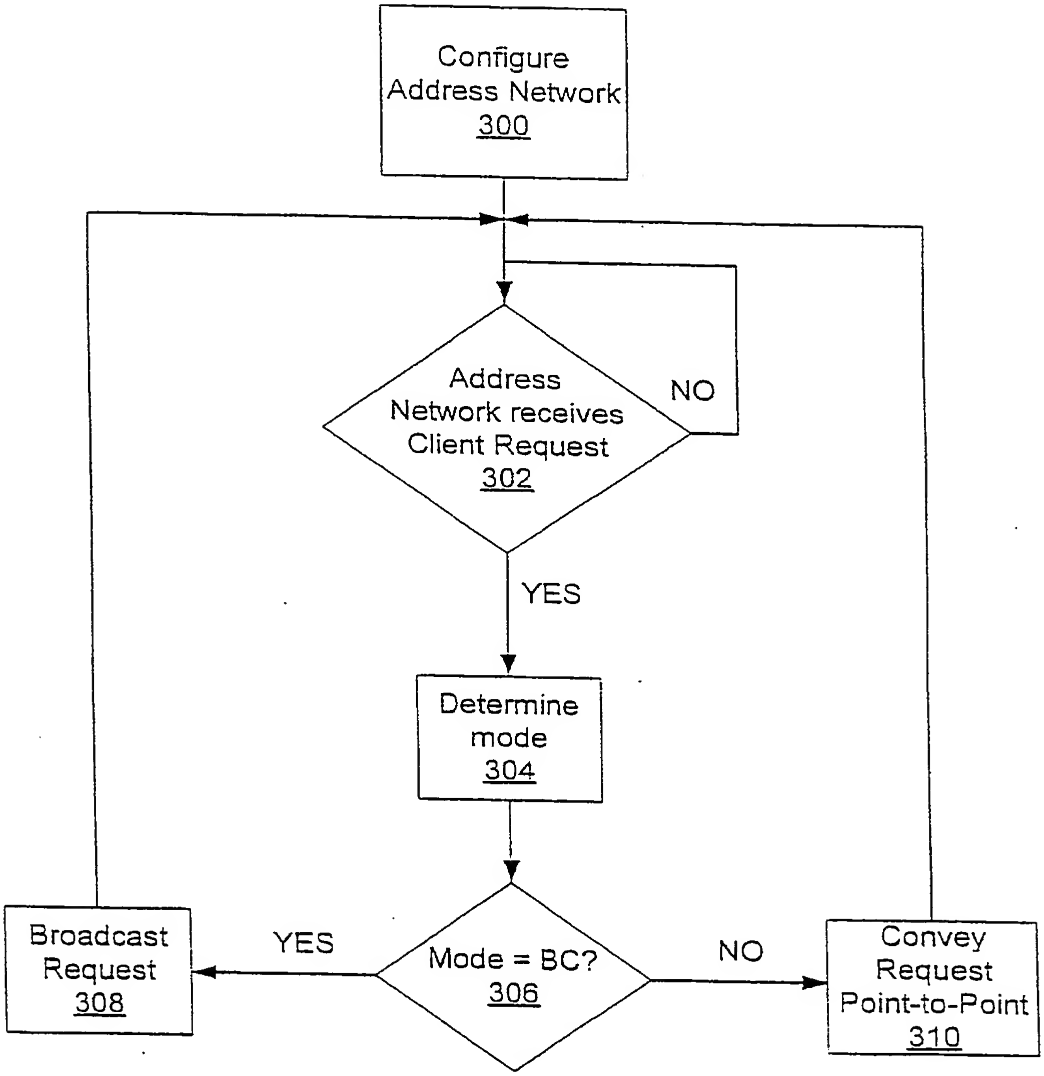
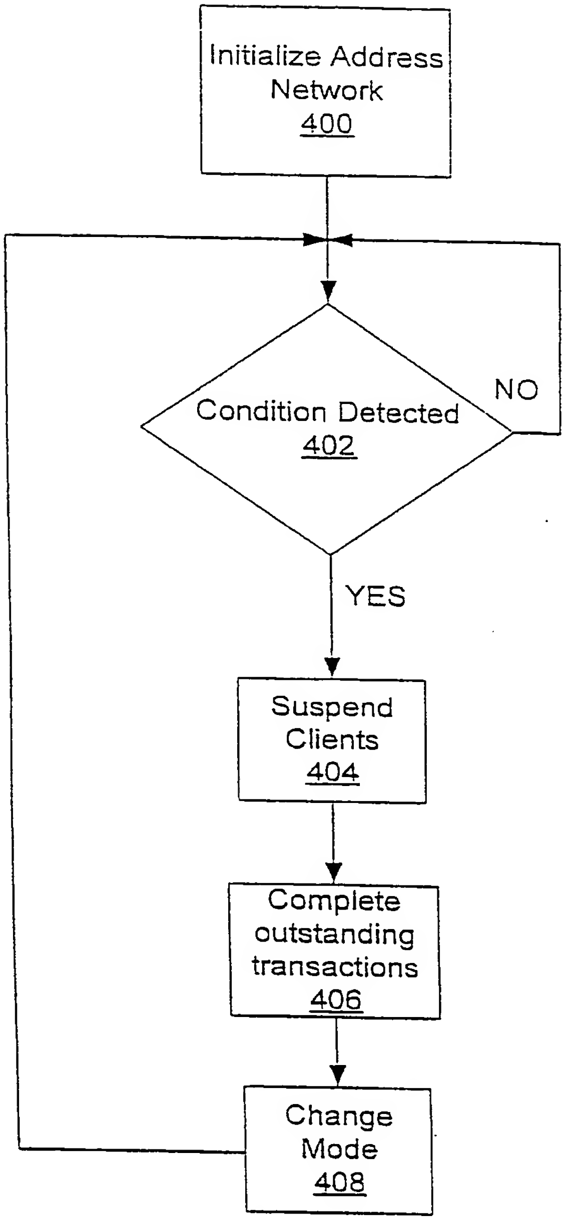

Configure Address Network 300
Address Network receives Client Request 302
NO
YES
Determine mode 304
Mode = BC? 306
YES
NO
Broadcast Request 308
Convey Request Point-to-Point 310

Fig. 5



Initialize Address Network
400
Condition Detected
402
NO
YES
Suspend Clients
404
Complete outstanding transactions
406
Change Mode
408

Fig. 6

Packet Type	Full Name	Address Space		Description
		Cacheable	I/O	
RTS	ReadToShare	Y		Requests read-only copy of cache line
RTO	ReadToOwn	Y		Requests writable copy of cache line
RTWB	ReadToWriteBack	Y		Requests to receive writable copy of cache line and send cache line to memory
RS	ReadStream	Y		Request read-once copy of cache line
WS	WriteStream	Y		Request to write entire cache line and send to memory
WB	WriteBack	Y		Request to send cache line from owning device to memory, device does not keep copy
WBS	WriteBackShared	Y		Request to send cache line from owning device to memory, device keeps read-only copy
RIO	ReadIO		Y	Request to read IO locations
WIO	WriteIO		Y	Request to write IO locations
INT	Interrupt			Sends an interrupt, target is specified by address

Fig. 7

Transaction Type	Initiator Receives	Initiator Sends
RTS	DATA	
RTO	DATA	
RTWB	DATA & PRN	DATA
RS	DATA	
WS	ACK & PRN	DATA
WB	PRN	DATA or NACK
WBS	PRN	DATA or NACK

Fig. 8

Transaction Type	Initiator Receives	Initiator Sends
RIO	DATA	
WIO	PRN	DATA
INT	PRN or NACK	DATA or Nothing

Fig. 9

Access Rights Symbol	Access Rights Name	Description	Data Present?
W	Write	Read and Write	Yes
A	All-Write	Write-only, must write entire cache line	Yes (or ACK)
R	Read	Read-only	Yes
T	Transient-Read	Read-only, read can be reordered	Yes
I	Invalid	No access rights	Yes or No

Fig. 10A

Ownership Status Symbol	Ownership Status Name	Description	Data Present?
O	Owner	Owns cache line	Yes or No
N	Not Owner	Does not own cache line	Yes or No

Fig. 10B

Access Right	Ownership Status
W	O
R	O
I	O
W	N
A	N
R	N
T	N
I	N

Fig. 10C

Transaction Type	New Owner
RTS	Previous Owner
RTO	Initiator
RTWB	Memory
RS	Previous Owner
WS	Memory
WB	Memory (or Previous Owner)
WBS	Memory (or Previous Owner)

Fig. 11

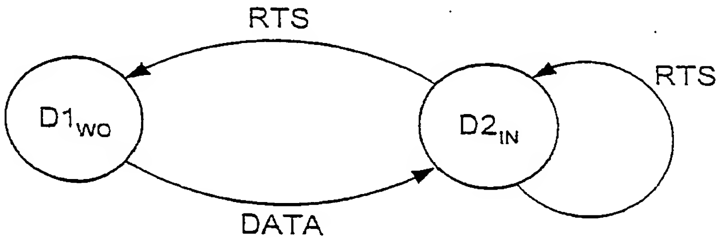


Fig. 12A

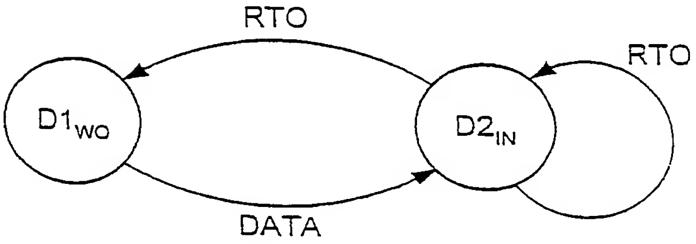


Fig. 12B

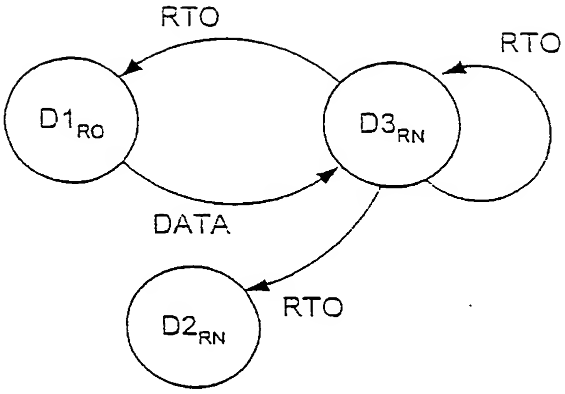


Fig. 12C

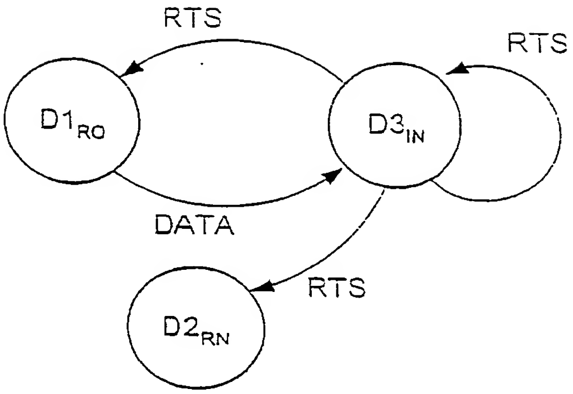


Fig. 12D

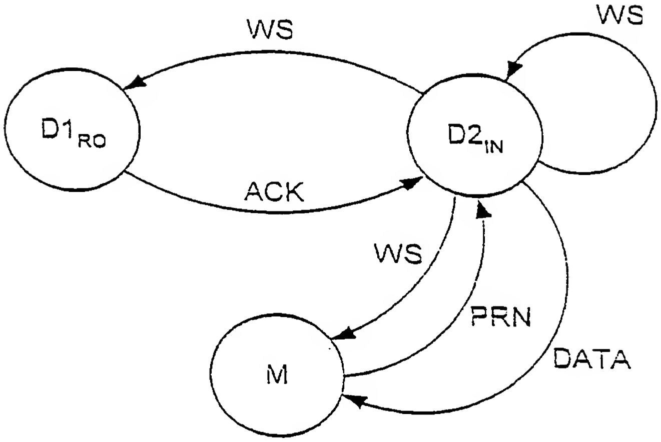


Fig. 12E

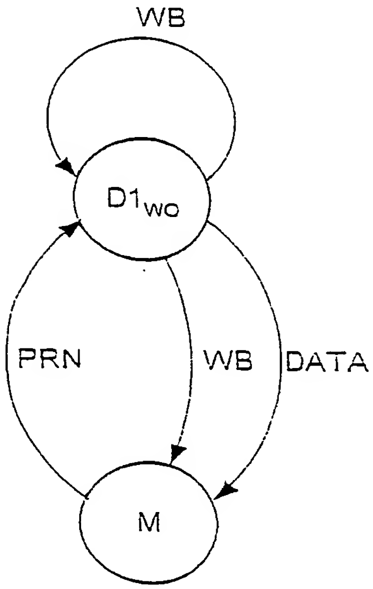


Fig. 12F

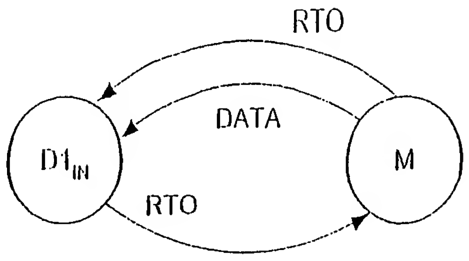


Fig. 13A

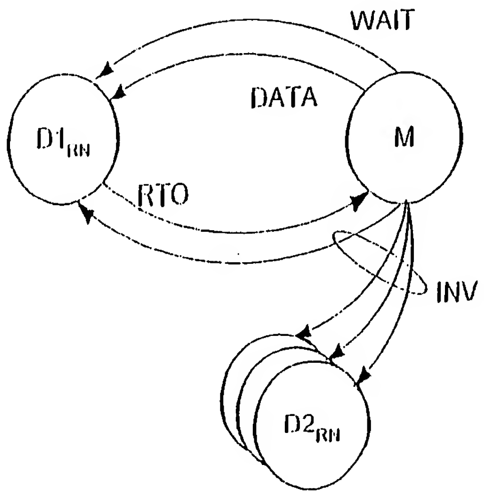


Fig. 13B

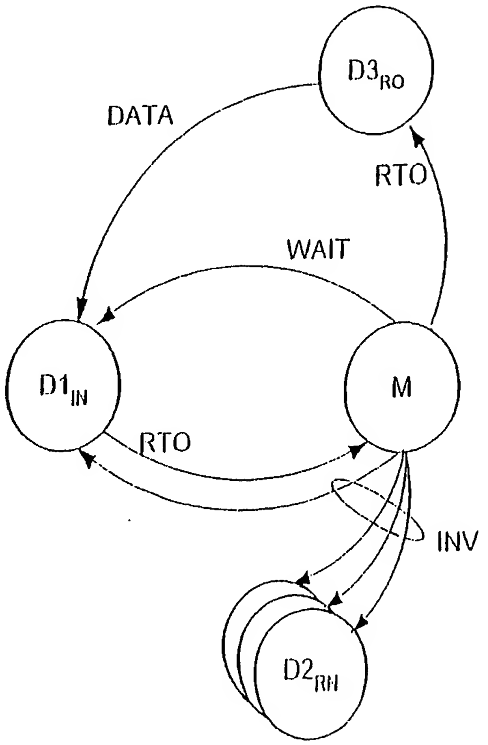


Fig. 13C

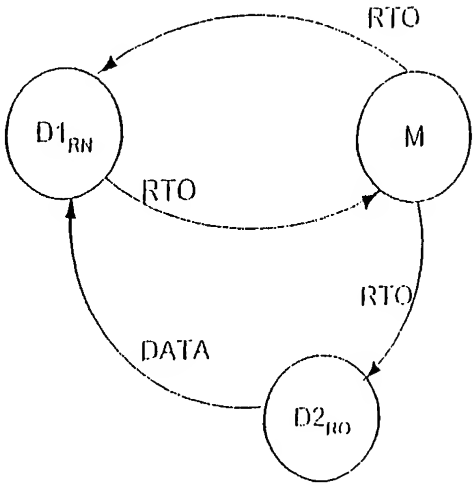


Fig. 13D

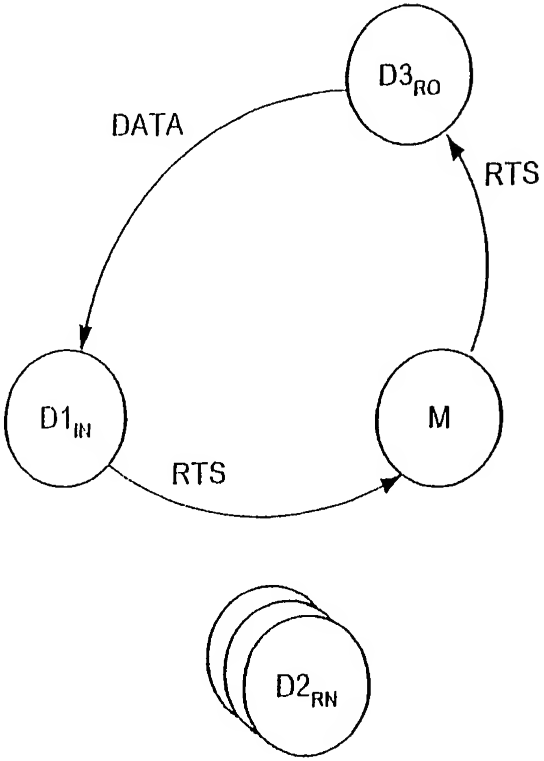


Fig. 13E

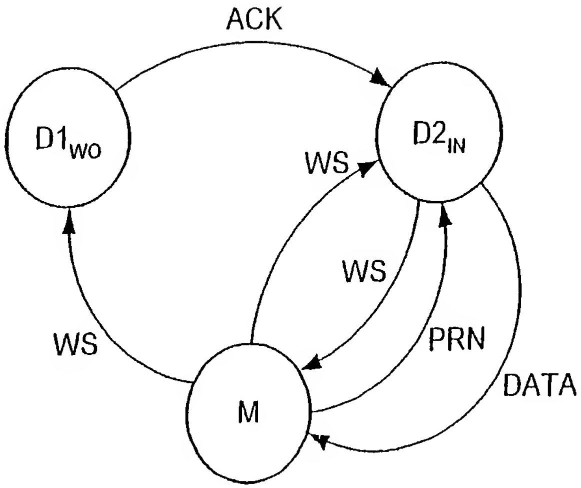


Fig. 13F

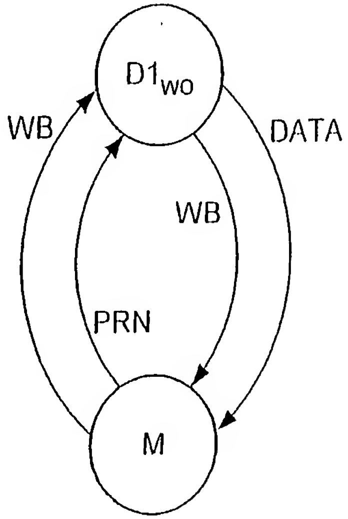


Fig. 13G

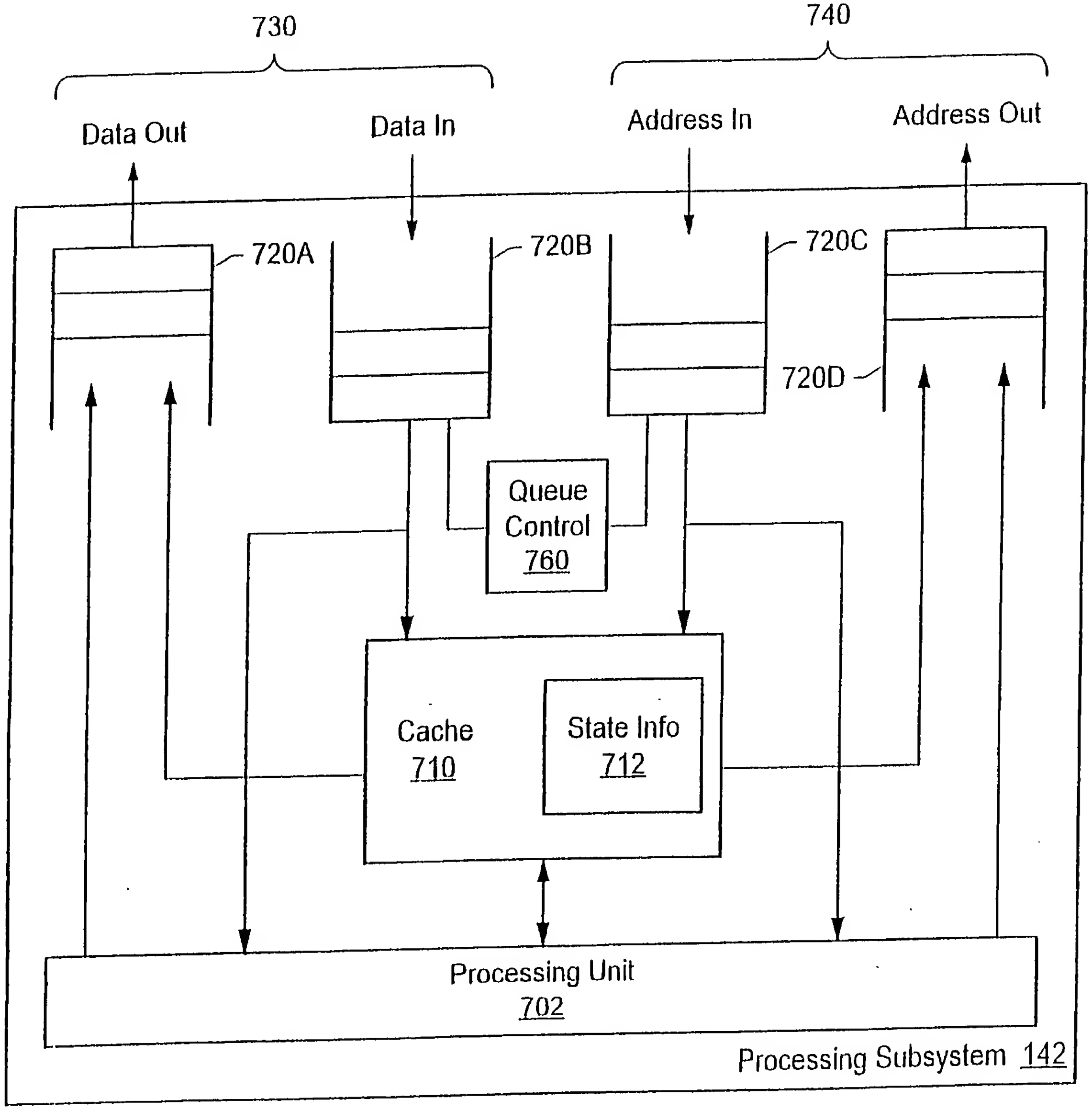

730
740
Data Out
Data In
Address In
Address Out
720A
720B
720C
720D
Queue Control 760
Cache 710
State Info 712
Processing Unit 702
Processing Subsystem 142

Fig. 14

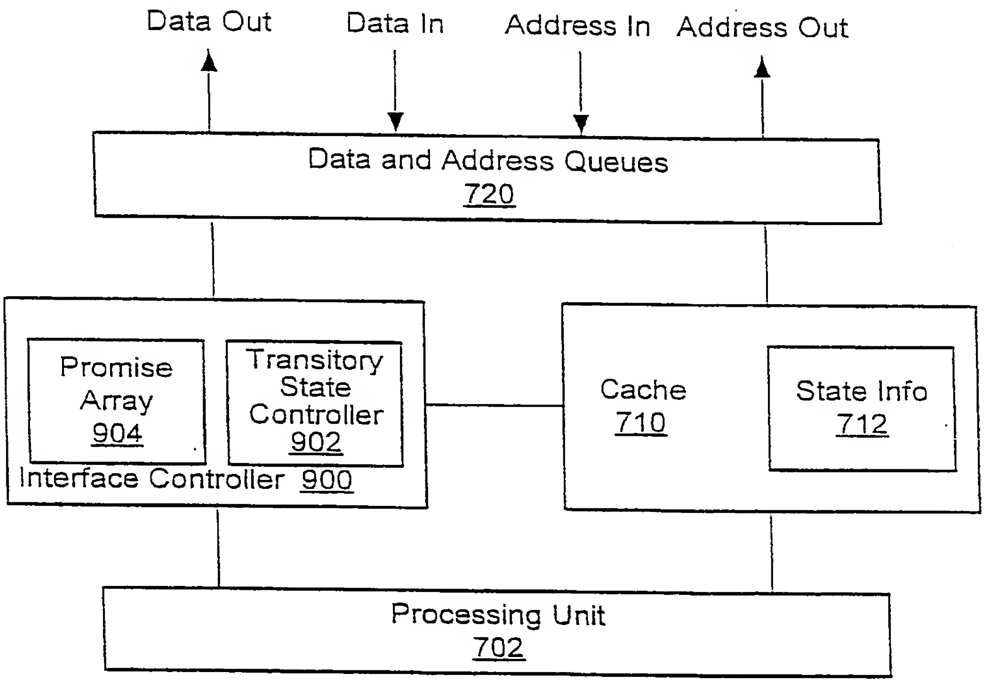

Data Out
Data In
Address In
Address Out
Data and Address Queues
720
Promise Array
904
Transitory State Controller
902
Interface Controller 900
Cache
710
State Info
712
Processing Unit
702

Fig. 15

State	Description
WOfh	Waiting for WAIT and ACK for local WS, has write access and ownership
WO	Stable state with write access and ownership
ROfh	Waiting for WAIT and ACK for local WS, has read access and ownership
ROe	Waiting for DATA for local RTO, has read access and ownership
ROde	Waiting for INV and DATA for local RTO, has read access and ownership
ROd	Waiting for INV for local RTO, has read access and ownership
ROce	Waiting for WAIT and DATA for local RTO, has read access and ownership
RO	Stable state with read access and ownership
IOe	Waiting for DATA for local RTO, has no access rights, has ownership
IOde	Waiting for INV and DATA for local RTO, has no access rights, has ownership
IOd	Waiting for INV for local RTO, has no access rights, has ownership
WNj	Able to send DATA/NACK for local WB/WBS, has write access and no ownership
WNi	Able to send DATA for local RTWB, write access, no ownership
WNh	Waiting for ACK for local WS, has write access, no ownership
WNc	Waiting for WAIT for local RTO, has write access, no ownership
WN	Stable state with write access, no ownership (caused by foreign transaction that took ownership, but for which no copyback has yet been performed)
ANi	Able to send DATA for local WS after performing write to entire cache line, no ownership
RNj	Able to send DATA/NACK for local WB/WBS, has read access and no ownership
RNh	Waiting for ACK for local WS, has read access, no ownership
RNg	Waiting for INV for local WS, has read access, no ownership
RNe	Waiting for DATA for local RTO, has read access, no ownership
RNde	Waiting for INV and DATA for local RTO, has read access, no ownership
RNd	Waiting for INV for local RTO, has read access, no ownership
RNce	Waiting for WAIT and DATA for local RTO, has read access, no ownership
RNcd	Waiting for WAIT and INV for local RTO, has read access, no ownership
RN	Stable state with read access, no ownership
TN	Performing read(s), which may be reordered, for local RTS or RS, no ownership
INk	Waiting for local RTO, RTWB, WS, WB or WBS after receiving an ERR or ERRL. No access rights, no ownership
INj	Able to send DATA/NACK for local WB/WBS, has no access rights and no ownership
INh	Waiting for ACK for local WS or for DATA for local RTWB, has no access rights, no ownership
INg	Waiting for INV for local WS or for INV for local RTWB, has no access rights, no ownership
INe	Waiting for DATA for local RTO, has no access rights, no ownership
INde	Waiting for INV and DATA for local RTO, has no access rights, no ownership
INd	Waiting for INV for local RTO, has no access rights, no ownership
INce	Waiting for WAIT and DATA for local RTO, has no access rights, no ownership
INcd	Waiting for WAIT and INV for local RTO, has no access rights, no ownership
INa	Waiting for DATA for local RTS, DATA may grant read access, has no access rights, no ownership
IN	Stable state with no access rights, no ownership

FIG. 15A

Action Code	Meaning	Comments
/a	Commit to send an ACK packet as a copyback by appending an entry for the received foreign packet in a copyback list. Set copy tag to I.	ACK packet may be sent from any state that allows copyback packets to be sent. It must be sent within a finite time of first entering such a state, regardless of what other packets have been received.
c/	Commit to send DATA and/or ACK packets for all outstanding copybacks for this cache line. Next, set copy tag to W. Then, perform state transition based on current state & local packet being received.	If sending copybacks changes the state from a state X to a state Y, the local packet being received will be received in state Y (and as a result, the entry for state Y in the table must be consulted to determine the state transition caused by receiving the local packet).
/d	Commit to send DATA packet for local RTWE, WS, WB, or WBS transaction. DATA packet is sent in response to receiving a PRN packet for this transaction.	DATA packet may not be sent until a PRN packet is received. It must be sent within finite time of receiving the PRN packet & having entered a state that permits the packet to be sent, regardless of what other packets have been received.
e/	Clear outstanding copyback commitments for this line by removing them from the copyback list. Do not send DATA or ACK packets for entries that were on the copyback list. Next, perform state transition based on current state & local packet being received.	This action code is used in response to receiving an ERR or ERRL packet. If an ERR packet was received in place of a PR or PRACK packet, or if an ERRL packet was received in place of a DATAP packet, a DATA packet may be sent to the error device.
/i	Commit to send a DATA packet as a copyback by appending an entry for the received foreign packet in the copyback list. Set copy tag to I.	DATA packet may be sent from any state that allows copyback packets to be sent. It must be sent within finite time of first entering such a state, regardless of what other packets have been received.
/j	Set write tag to I.	
/n	Commit to send NACK packet for local WB or WBS transaction & set write tag to W. NACK packet is sent in response to receiving a PRN packet for this transaction.	NACK packet may be sent at any time after receiving the PRN packet. It must be sent within finite time of receiving the PRN packet, regardless of what other packets have been received.
/r	Commit to send a DATA packet as a copyback by appending an entry for the received foreign packet in the copyback list. If copy tag is W, set copy tag to R.	DATA packet may be sent from any state that allows copyback packets to be sent. It must be sent within finite time of first entering such a state, regardless of what other packets have been received.
/s	Set write tag to R.	
/w	Commit to send a DATA packet as a copyback by appending an entry for the received foreign packet in the copyback list.	DATA packet may be sent from any state that allows copyback packets to be sent. It must be sent within finite time of first entering such a state, regardless of what other packets have been received.
/y	If copy tag is R, set copy tag to I.	Used to record invalidating transactions while a copyback for a foreign memory remap is pending.
/z	If write tag is R, set write tag to I.	Used to record invalidating transactions while a local WBS transaction is pending.

FIG. 15B

	Old State	IN	INa	INj	INk	INcd	INce	INd	INde	INe	INg	INh	IN	RN	RNj	RNcd	RNce	RNd	RNde	RNe	RNg	RNh	ANi	WN	WNj	WNc	WNfh	WNi	IOd	IOde	IOe	RO	ROce	ROd	ROde	ROe	ROfh	WO	WOfh
Send on Address Network	RTS *(a)*	Na																																					
	RS																																						
	RTO																																						
	RTWB	/j																																					
	WS/WB	/j												/j										/j								/j						/j	
	WBS	/s												/s										/s								/s						/s	
Receive	DATA for RTS	c/TN	c/RN											—																									
	DATA for RS	c/TN												—																									
	RTO*(c + d)*	c/IOe			IN	WO								c/ROe		WO																c/WO							
	WAIT for RTO *(c)*	c/IOde				IOd	c/IOe							c/ROde		ROd	c/ROe									WO						c/ROd	c/WO						
	INV for RTO *(d)*	INce				WNc		WN	INe					RNce		WNc		WN	RNe										WO	IOe		ROce		WO	ROe				
	DATA for RTO *(e)*	c/INcd					c/WNc		INd	WN				c/RNcd			c/WNc		RNd	WN										IOd	WO				ROd	WO			
	RTWB/INV for RTWB *(g)*	INh			IN						WNi/d																												
	DATA for RTWB *(h)*	INg										WNi/d																											
	WS*(f+ g)*	INh			IN						ANi/d			RNh							ANi/d			WNh								c/ANi/d						c/ANi/d	
	WAIT for WS *(f)*																															c/INg					c/ANi/d	c/INg	c/ANi/d
	INV for WS *(g)*	INh									ANi/d			RNh							ANi/d			WNh								ROfh						WOfh	
	ACK for WS *(h)*	c/INg										c/ANi/d		c/RNg								c/ANi/d																	
	WB/WBS	INj/n			IN									RNj/n										WNj/n								RNj/d						WNj/d	
	ERR (2)	INk		IN								IN			RN							RN			WN		WN												
	ERRL for RTS/RS	—	IN											—																									
	ERRL for RTO/ RTWB (2)	INk								c/IN		IN																			c/IN								
Send DATA or NACK	Write tag W			IN											RN										WN														
	Write tag R			IN											RN										RN														
	Write tag I			IN											IN								IN		IN			IN											
	Silent Downgrade												IN	N.										RN														RO	

Fig. 15C

Old State	Receive							Send DATA or ACK copyback packet		
	RS	RTS	RTO/ RTWB	WS	INV	MRM	MDM	Copy tag W	Copy tag R	Copy tag I
WOfh	/w	/r	WNh/i	WNh/a		■	■		ROfh	■
WO	/w	/r	WN/i	WN/a	/z	WN/r	WN/i		RO	■
ROfh	/w	/r	RNh/i	RNh/a		■	■			■
ROe	/w	/r	RNe/i	RNe/a	IOe	RNe/r	RNe/i	▨	▨	■
ROde	/w	/r	RNde/i	RNde/a	IOde	■	■	▨	▨	■
ROd	/w	/r	RNd/i	RNd/a		■	■	▨	▨	■
ROce	/w	/r	RNce/i	RNce/a		■	■			■
RO	/w	/r	RN/i	RN/a	/z	RN/r	RN/i			■
IOe	/w	/r	INe/i	INe/a		INe/r	INe/i	▨	▨	■
IOde	/w	/r	INde/i	INde/a		■	■	▨	▨	■
IOd	/w	/r	INd/i	INd/a		■	■	▨	▨	■
WNi								■	■	■
WNh								■	RNh	INh
WNc			■	■		■	■	■	■	■
WNj			/yz	/yz	/z		/yz		RNj	INj
WN			/y	/y	/z		/y		RN	IN
ANi								■	■	■
RNh					INh					INh
RNg			■	■		■	■	■	■	■
RNe			/y	/y	INe		/y	▨	▨	▨
RNde			■	■	INde	■	■	▨	▨	▨
RNd			■	■		■	■	▨	▨	▨
RNce			■	■	INce	■	■			INce
RNcd			■	■		■	■	■	■	■
RNj			INj	INj	INj		INj			INj
RN			IN	IN	IN		IN			IN
TN								■	■	■
INh										
INg			■	■		■	■	■	■	■
INe			/y	/y			/y	▨	▨	▨
INde			■	■		■	■	▨	▨	▨
INd			■	■		■	■	▨	▨	▨
INce			■	■		■	■			
INcd			■	■		■	■	■	■	■
INk						■	■	■	■	■
INj										
INa			IN	IN	IN		IN			
IN										

Fig 15D

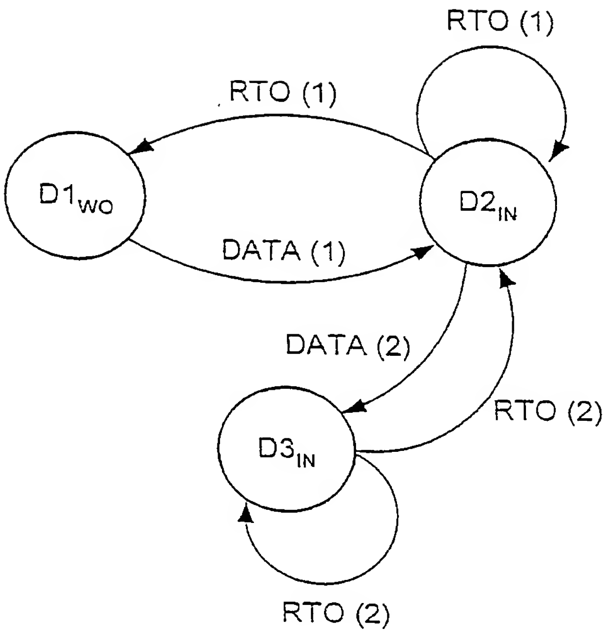

RTO (1)
RTO (1)
D1$_{WO}$
D2$_{IN}$
DATA (1)
DATA (2)
RTO (2)
D3$_{IN}$
RTO (2)

Fig. 16

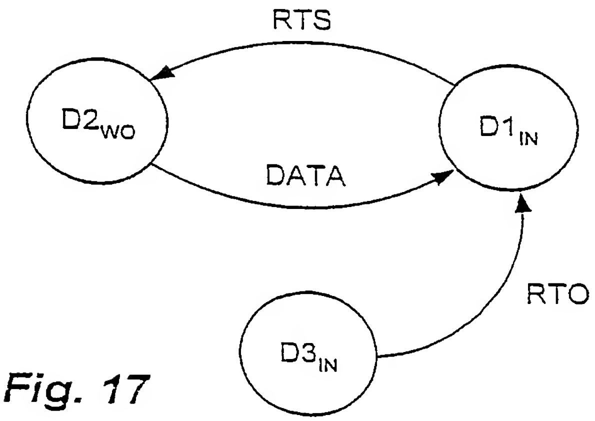

RTS
D2$_{WO}$
D1$_{IN}$
DATA
RTO
D3$_{IN}$

Fig. 17

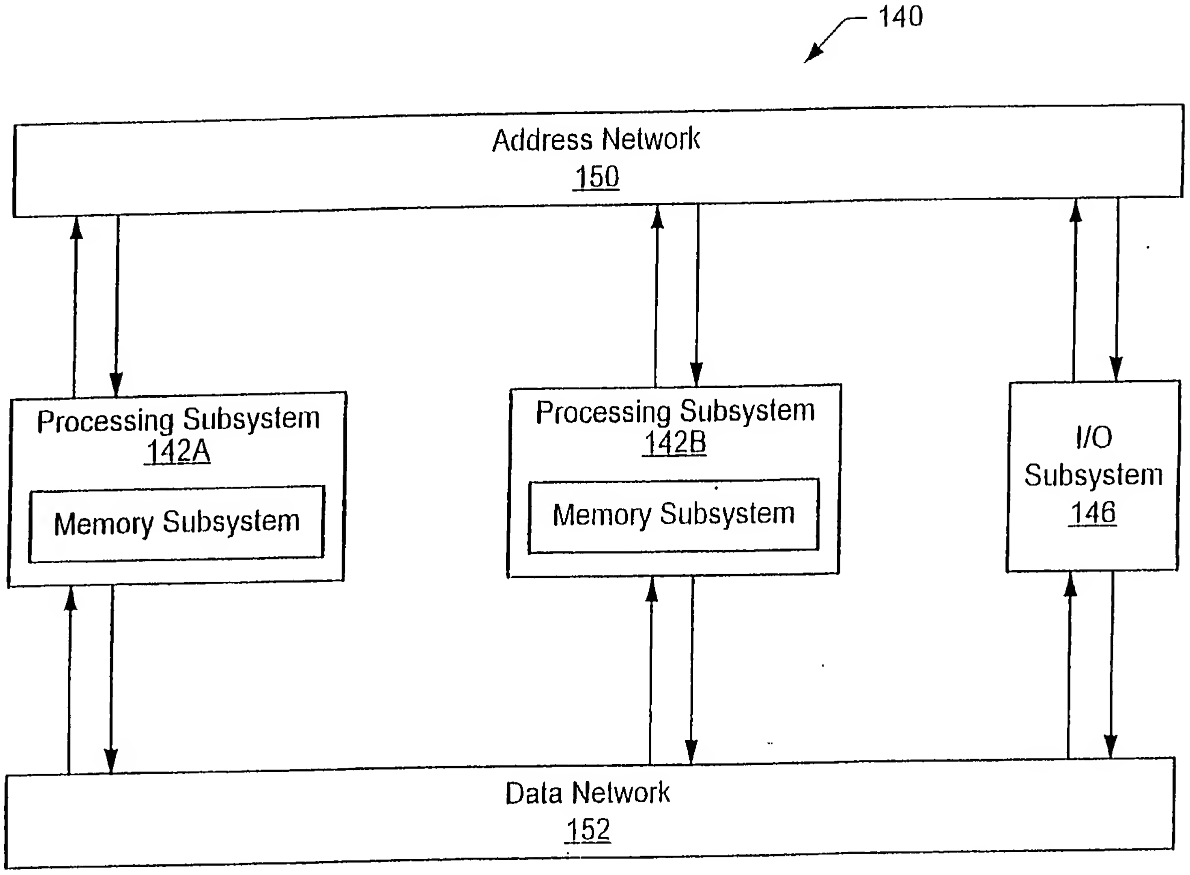

140
Address Network
150
Processing Subsystem
142A
Memory Subsystem
Processing Subsystem
142B
Memory Subsystem
I/O
Subsystem
146
Data Network
152

Fig. 18

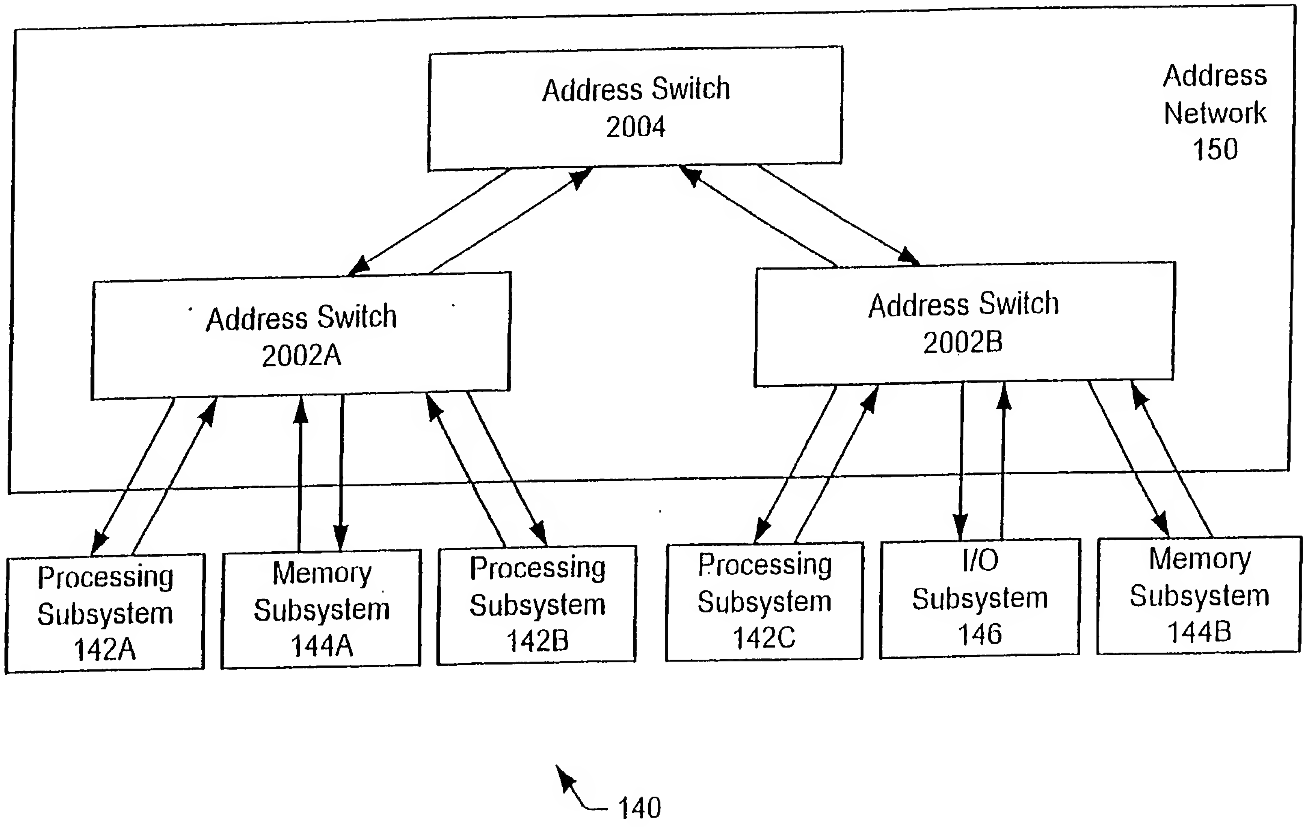

Address Switch
2004
Address
Network
150
Address Switch
2002A
Address Switch
2002B
Processing
Subsystem
142A
Memory
Subsystem
144A
Processing
Subsystem
142B
Processing
Subsystem
142C
I/O
Subsystem
146
Memory
Subsystem
144B
140

Fig. 19

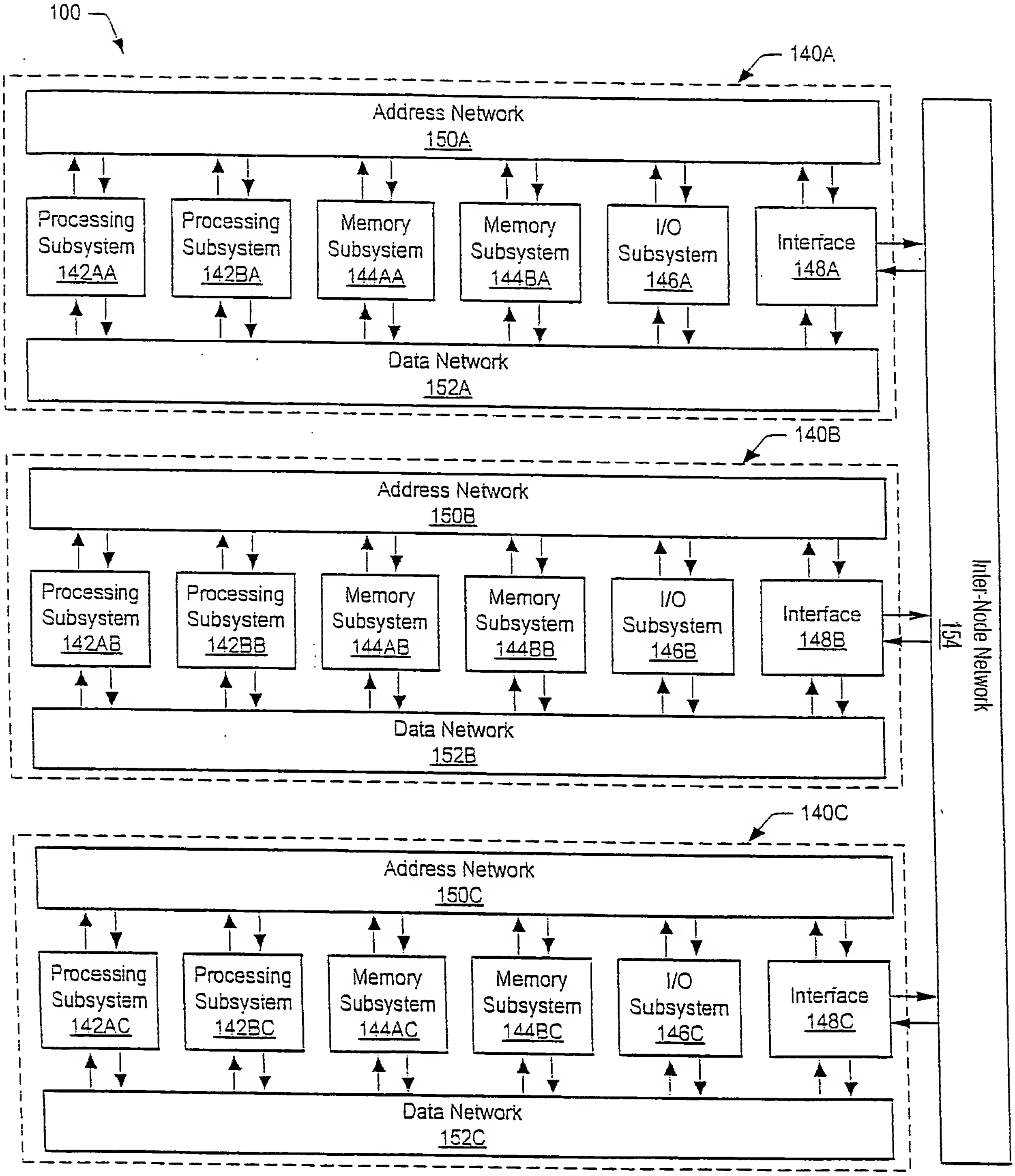

100
140A
Address Network
150A
Processing Subsystem
142AA
Processing Subsystem
142BA
Memory Subsystem
144AA
Memory Subsystem
144BA
I/O Subsystem
146A
Interface
148A
Data Network
152A
140B
Address Network
150B
Processing Subsystem
142AB
Processing Subsystem
142BB
Memory Subsystem
144AB
Memory Subsystem
144BB
I/O Subsystem
146B
Interface
148B
Data Network
152B
140C
Address Network
150C
Processing Subsystem
142AC
Processing Subsystem
142BC
Memory Subsystem
144AC
Memory Subsystem
144BC
I/O Subsystem
146C
Interface
148C
Data Network
152C
Inter-Node Network
154

Fig. 20

gTag	Description
gM	The maximum access right within the node is Write Access
gS	The maximum access right within the node is Read Access. No client device in the node can have Write Access.
gI	The maximum access right within the node is Invalid Access. No client device in the node can have Read or Write Access.

Fig. 21

Packet Type	Full Name	Address Space		Description
		Cacheable	I/O	
PRTS	Proxy RTS	Y		Request from an interface in a gS or gI node in response to an RTS request from another node
PRTSM	Proxy RTS Modified	Y		Request from an interface in a gM node in response to an RTS request from another node
PRTOM	Proxy RTO Modified	Y		Request from an interface in a gM node in response to an RTO request from another node
PRTO	Proxy ReadToOwn	Y		Request from an interface in response to an RTO reqest from another node
PU	Proxy Upgrade	Y		Request from an interface asking memory to supply data for an outstanding RTO
PDU	ProxyDataUpgrade	Y		Request from an interface asking memory to update gTag to gM; interface supplies data for an outstanding RTO
PRSM	Proxy ReadStream Modified	Y		Request from an interface in a gM node in response to RS request from another node
PIM	ProxyInvalidate Modified	Y		Request from an interface in a gM node to invalidate data in caches and memory
PI	ProxyInvalidate	Y		Request from an interface in a gS or gI node to invalidate data in caches and memory
PMR	ProxyMemoryRead	Y		Request from an interface to memory to read coherency state(s) and data or meta-data
PMW	ProxyMemoryWrite	Y		Request from an interface to memory to write coherency state(s) and data or meta-data

Fig. 22

Packet Type	Full Name	Description
DATAM	Data-Meta	Data packet containing data and coherence state information
DATAN	Data-NoPull	Data packet sent in response to PRTSM indicating no PRN will be coming
REP	Report	Report from memory to an interface indicating a transaction to be handled by the interface

Fig. 23

Subtransaction	Preexisting Global Access State	New Global Access State
PRTSM	Modified	Shared
PRTOM	Modified	Invalid
PRTO	Shared, Invalid	Invalid
PU	Shared	Modified
PDU	Shared, Invalid, Modified	Modified
PRSM	Modified	Unchanged
PIM	Modified	Invalid
PI	Shared, Invalid	Invalid
PMR	Shared, Invalid, Modified	Unchanged
PMW	Shared, Invalid, Modified	Equal to new global access state specified in DATAM packet

Fig. 24

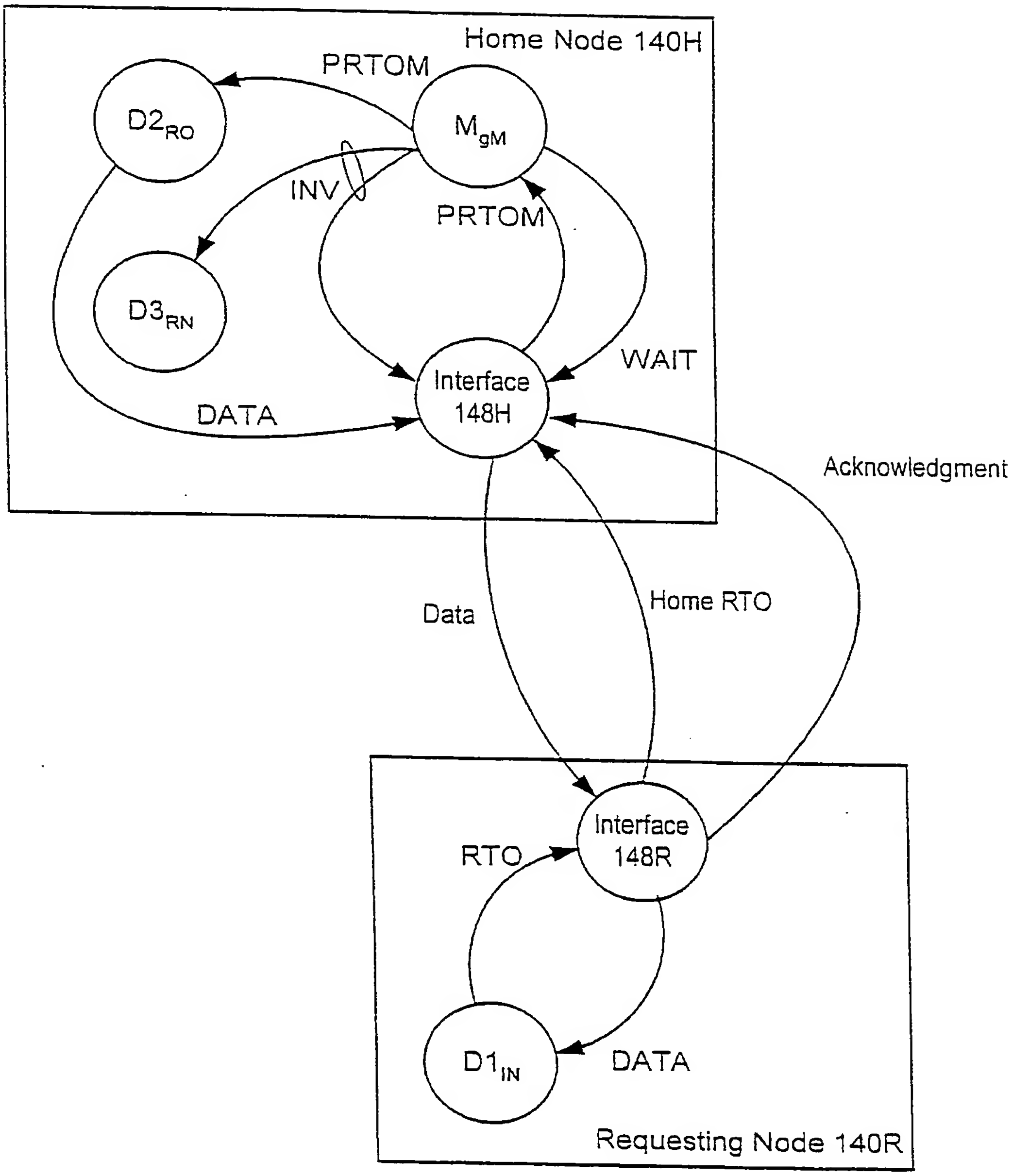

Home Node 140H
PRTOM
D2$_{RO}$
M$_{gM}$
INV
PRTOM
D3$_{RN}$
WAIT
Interface 148H
DATA
Acknowledgment
Data
Home RTO
Interface 148R
RTO
D1$_{IN}$
DATA
Requesting Node 140R

Fig. 25

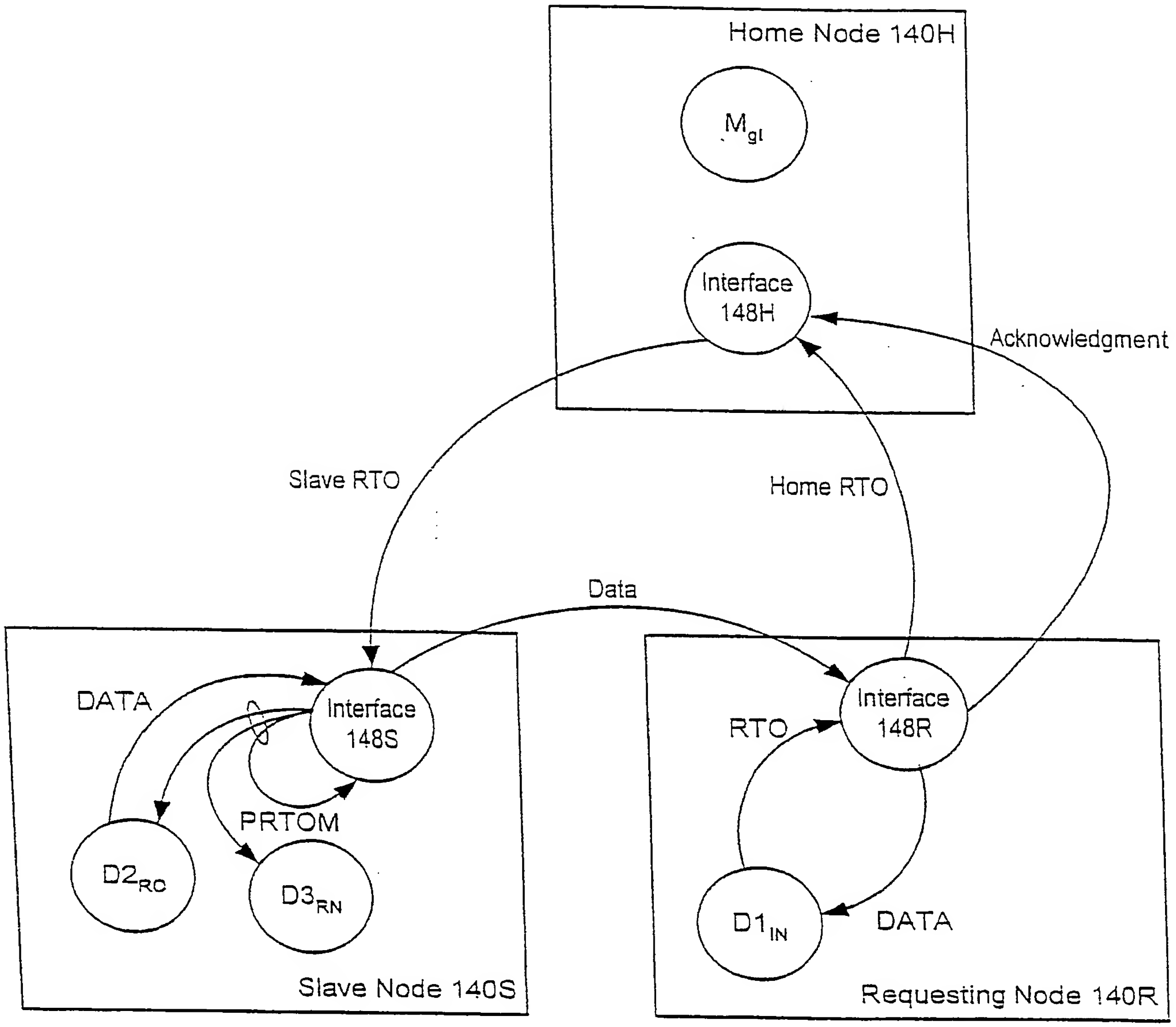

Home Node 140H
M_{gl}
Interface 148H
Acknowledgment
Slave RTO
Home RTO
Data
DATA
Interface 148S
PRTOM
$D2_{RC}$
$D3_{RN}$
Slave Node 140S
RTO
Interface 148R
$D1_{IN}$
DATA
Requesting Node 140R

Fig. 26

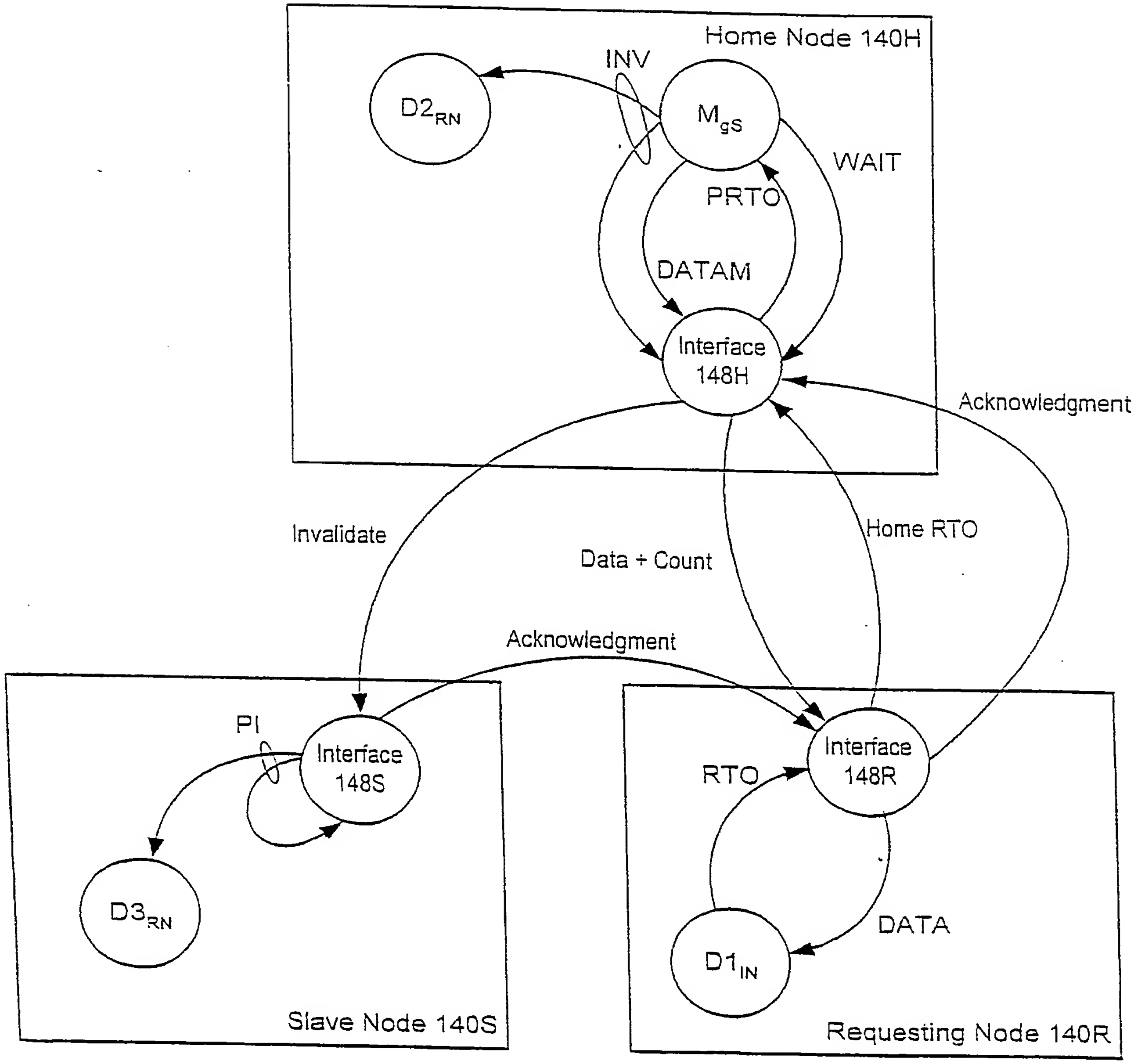

Home Node 140H
$D2_{RN}$
INV
M_{gs}
WAIT
PRTO
DATAM
Interface 148H
Acknowledgment
Invalidate
Data + Count
Home RTO
Acknowledgment
PI
Interface 148S
$D3_{RN}$
Slave Node 140S
RTO
Interface 148R
DATA
$D1_{IN}$
Requesting Node 140R

Fig. 27

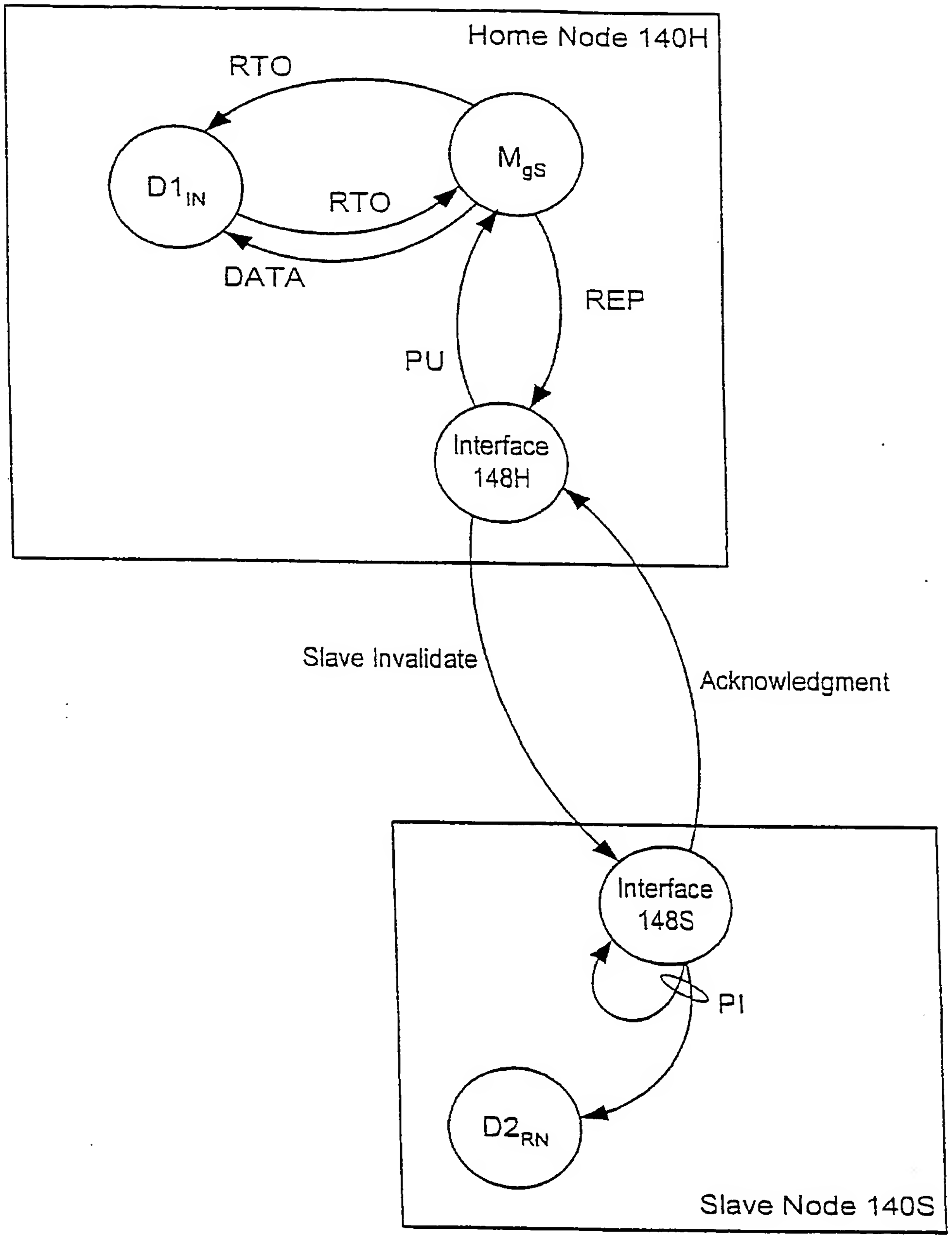

Home Node 140H
RTO
$D1_{IN}$
M_{gS}
RTO
DATA
REP
PU
Interface 148H
Slave Invalidate
Acknowledgment
Interface 148S
PI
$D2_{RN}$
Slave Node 140S

Fig. 28

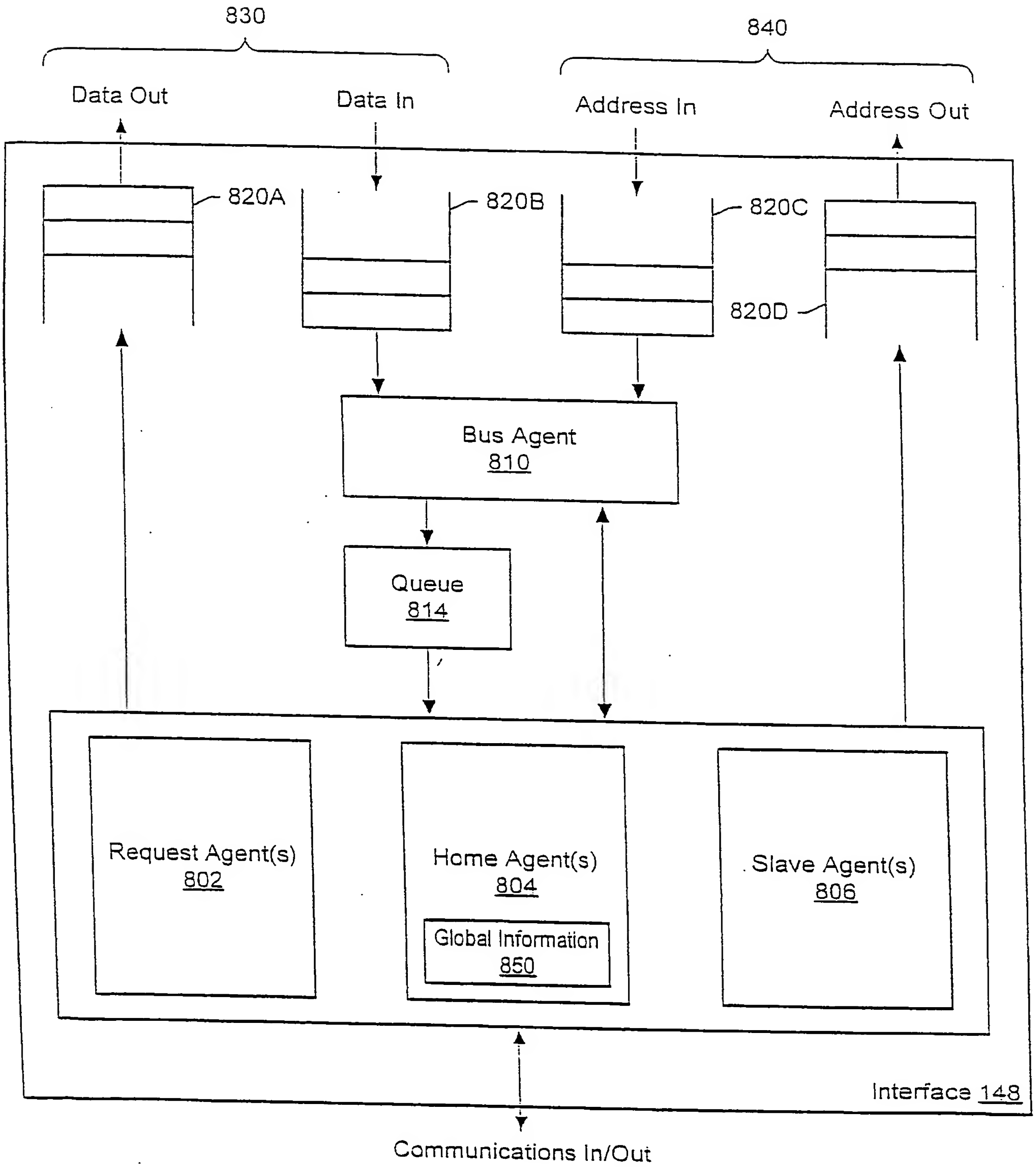

830
840
Data Out
Data In
Address In
Address Out
820A
820B
820C
820D
Bus Agent
810
Queue
814
Request Agent(s)
802
Home Agent(s)
804
Global Information
850
Slave Agent(s)
806
Interface 148
Communications In/Out

Fig. 29

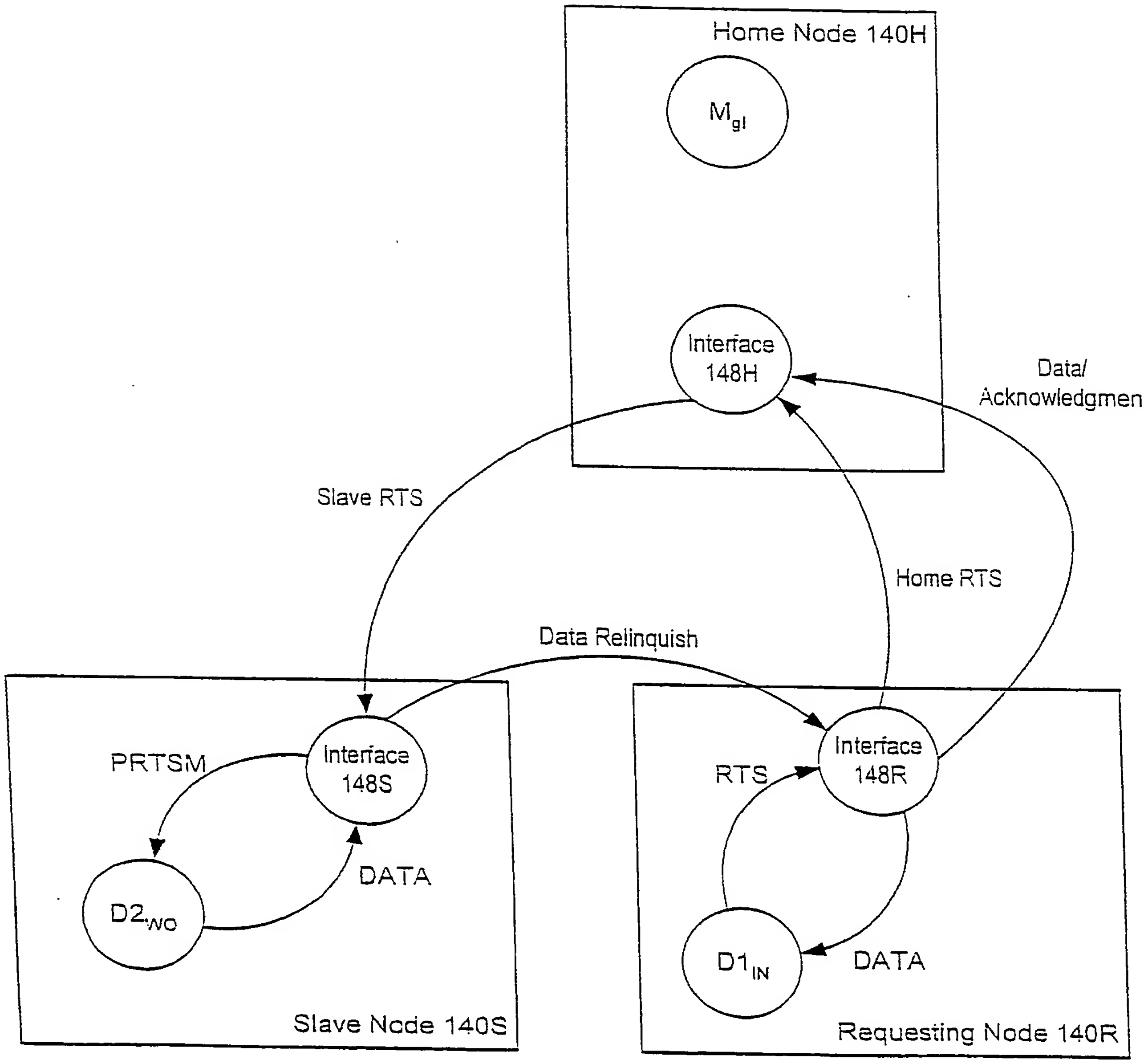

Home Node 140H
M_{gl}
Interface 148H
Data/ Acknowledgment
Slave RTS
Home RTS
Data Relinquish
PRTSM
Interface 148S
DATA
$D2_{WO}$
Slave Node 140S
RTS
Interface 148R
$D1_{IN}$
DATA
Requesting Node 140R

Fig. 30

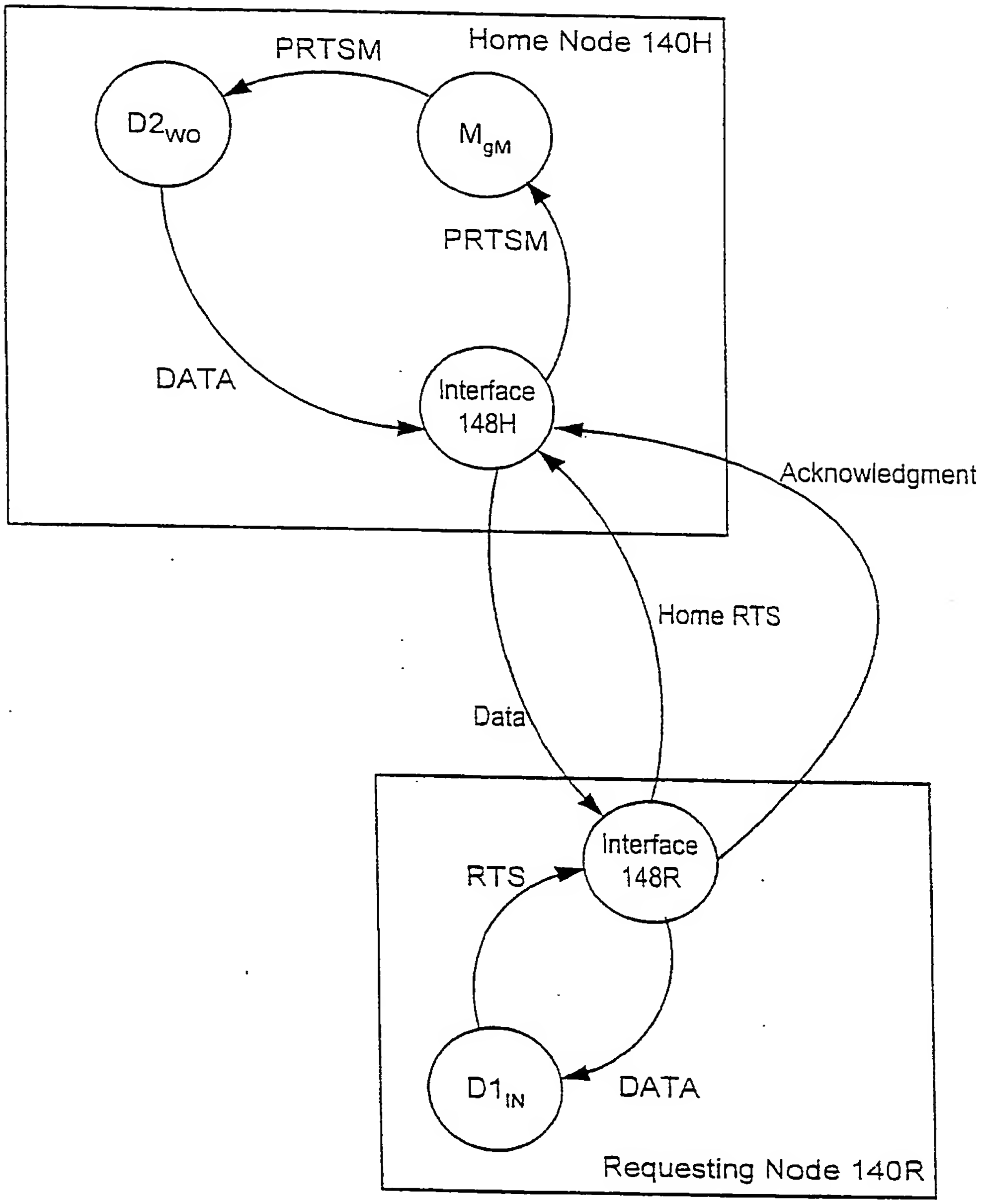

Home Node 140H
PRTSM
$D2_{WO}$
M_{gM}
PRTSM
DATA
Interface 148H
Acknowledgment
Home RTS
Data
Interface 148R
RTS
$D1_{IN}$
DATA
Requesting Node 140R

Fig. 31

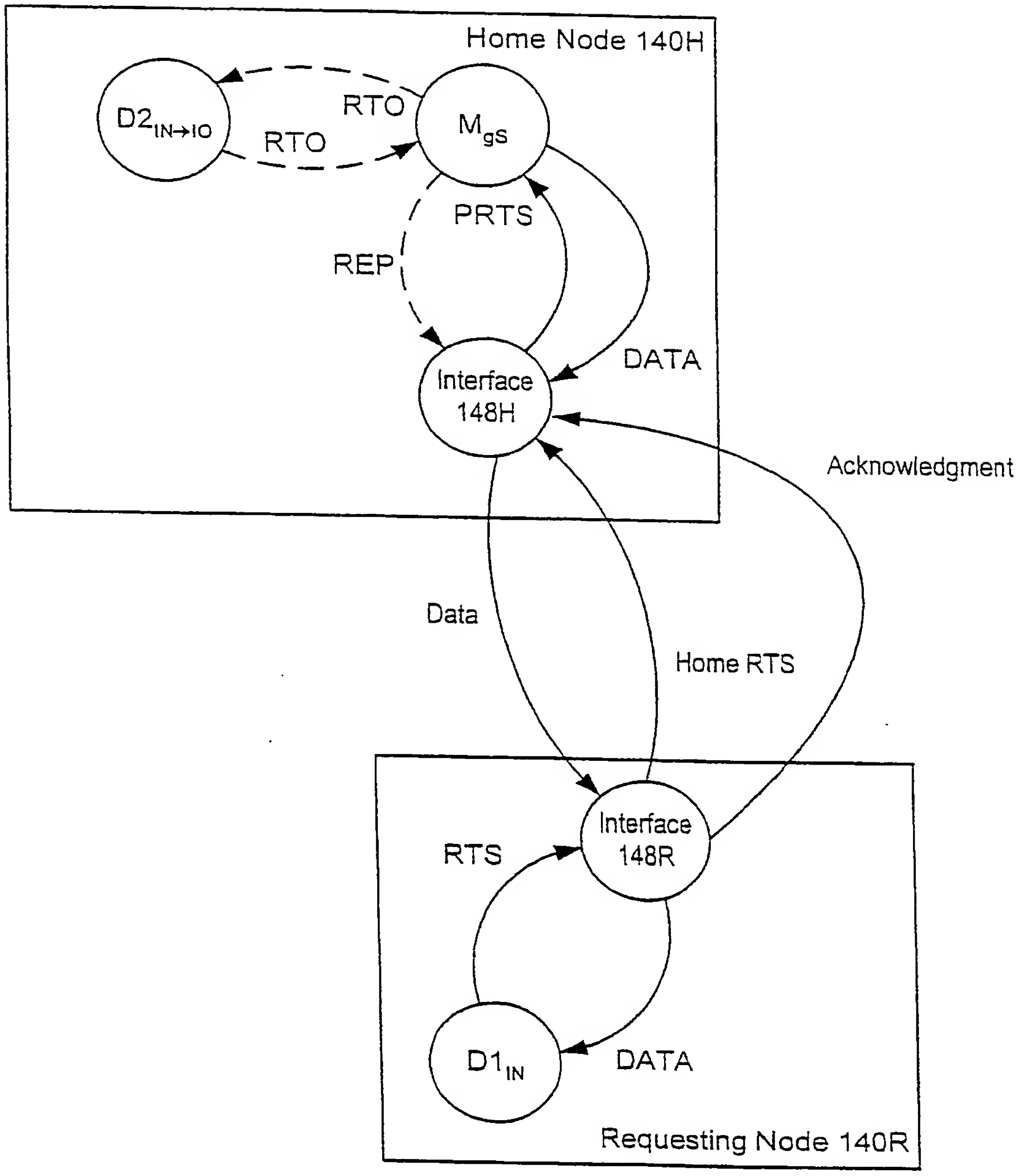

Home Node 140H
D2_IN→IO
RTO
RTO
M_gS
PRTS
REP
DATA
Interface 148H
Acknowledgment
Data
Home RTS
RTS
Interface 148R
D1_IN
DATA
Requesting Node 140R

Fig. 32

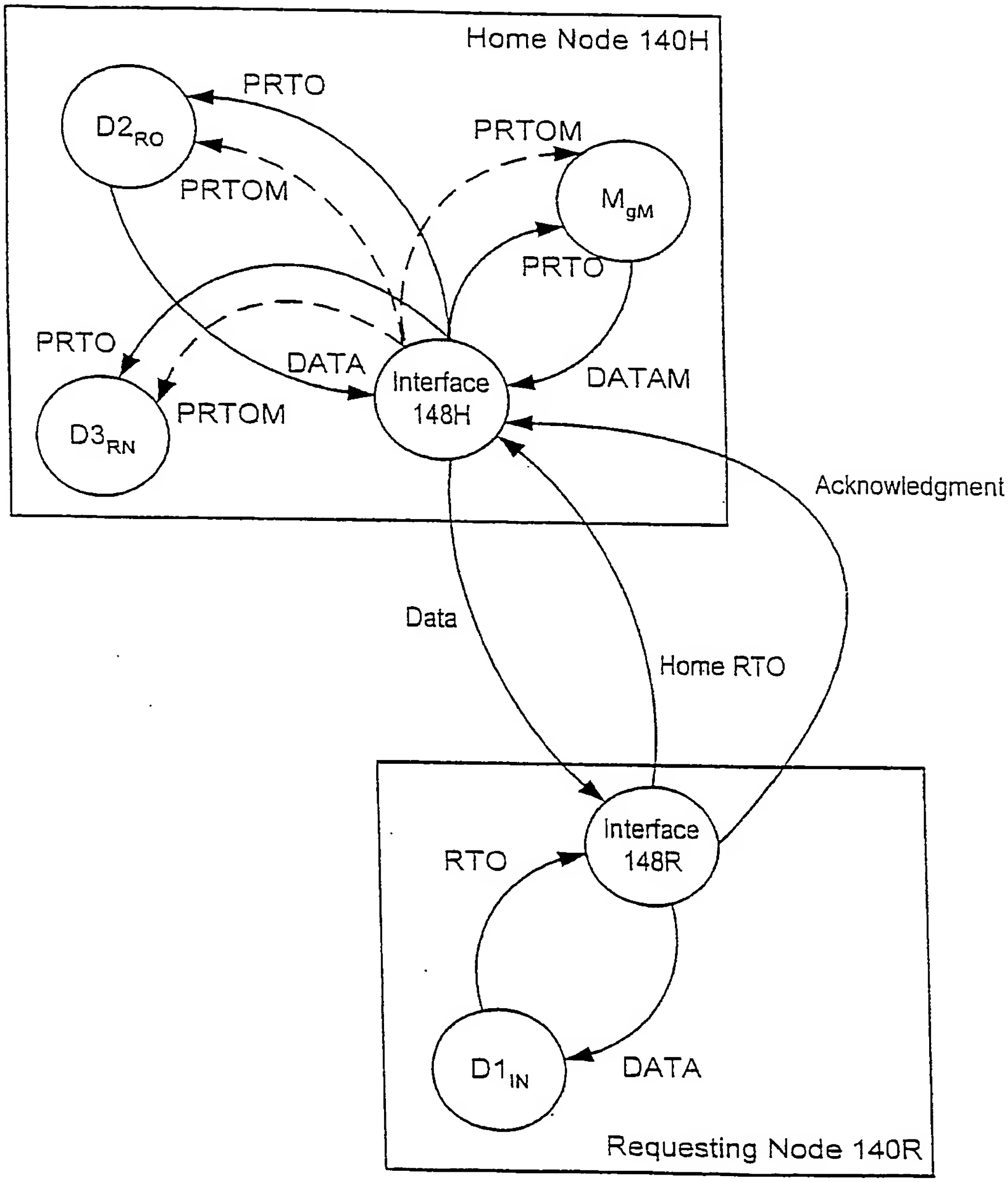

Home Node 140H
PRTO
D2$_{RO}$
PRTOM
PRTOM
M$_{gM}$
PRTO
PRTO
DATA
Interface 148H
DATAM
D3$_{RN}$
PRTOM
Acknowledgment
Data
Home RTO
Interface 148R
RTO
D1$_{IN}$
DATA
Requesting Node 140R

Fig. 33

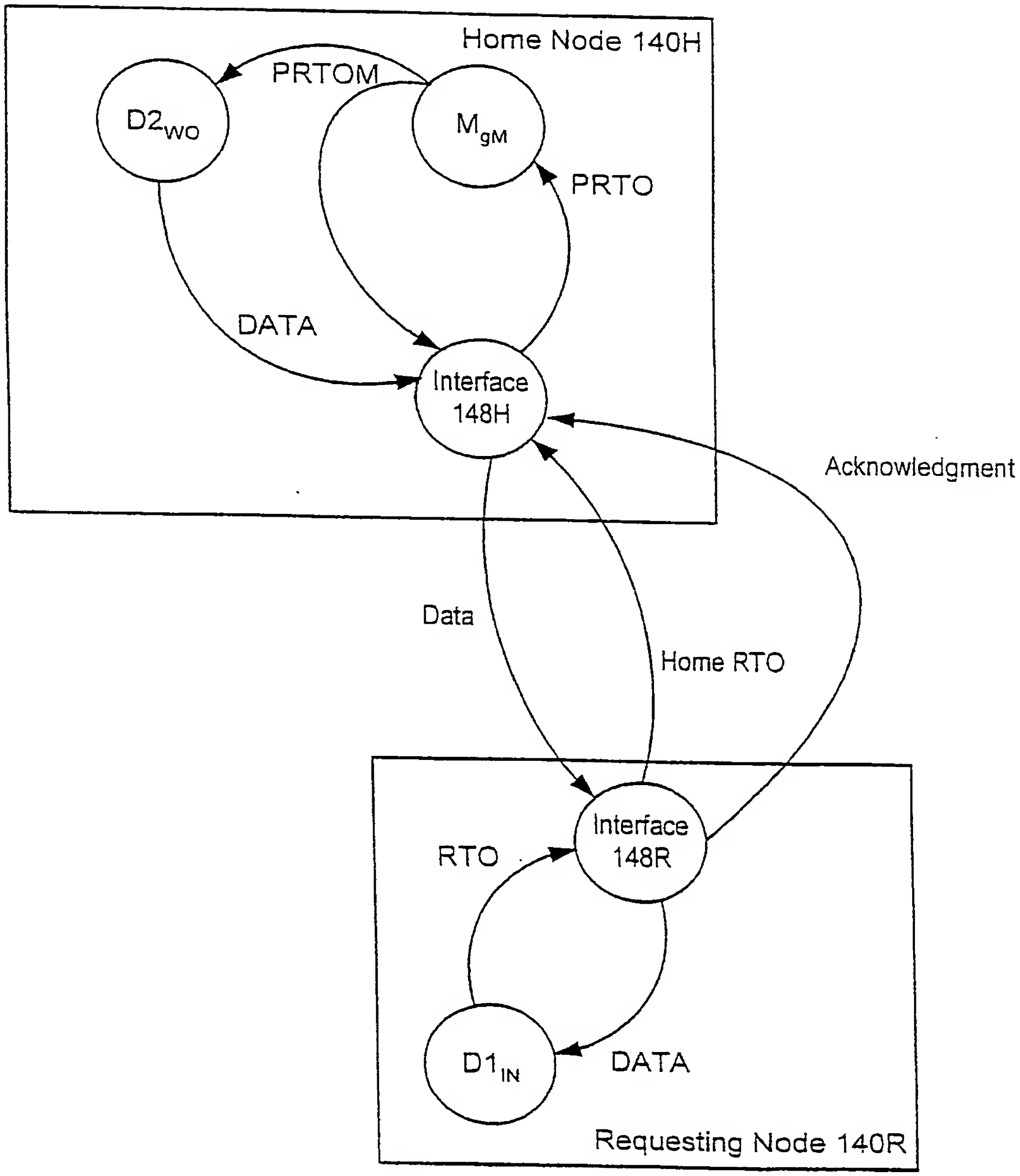

Home Node 140H
PRTOM
D2$_{WO}$
M$_{gM}$
PRTO
DATA
Interface 148H
Acknowledgment
Data
Home RTO
RTO
Interface 148R
D1$_{IN}$
DATA
Requesting Node 140R

Fig. 34

Response Info	gTag	Home Memory Subsystem Action
No	gM	BC Mode-- Allow owning device to respond. PTP Mode-- Forward response to owning device
No	gS	Send REP packet to interface if write access requested
No	gI	Send REP packet to interface
Yes	gM	Respond with copy of the requested coherency unit

Fig. 35

Response Info	Memory Subsystem's Action
mN	Does not respond with copy of coherency unit because a cache within the node owns the coherency unit
mR	Does respond because memory is the owner
mS	Does respond to requests for shared access because memory has shared copy and no active device has ownership; does not respond to requests for write access
mI	Does not respond because memory's copy is invalid

Fig. 36

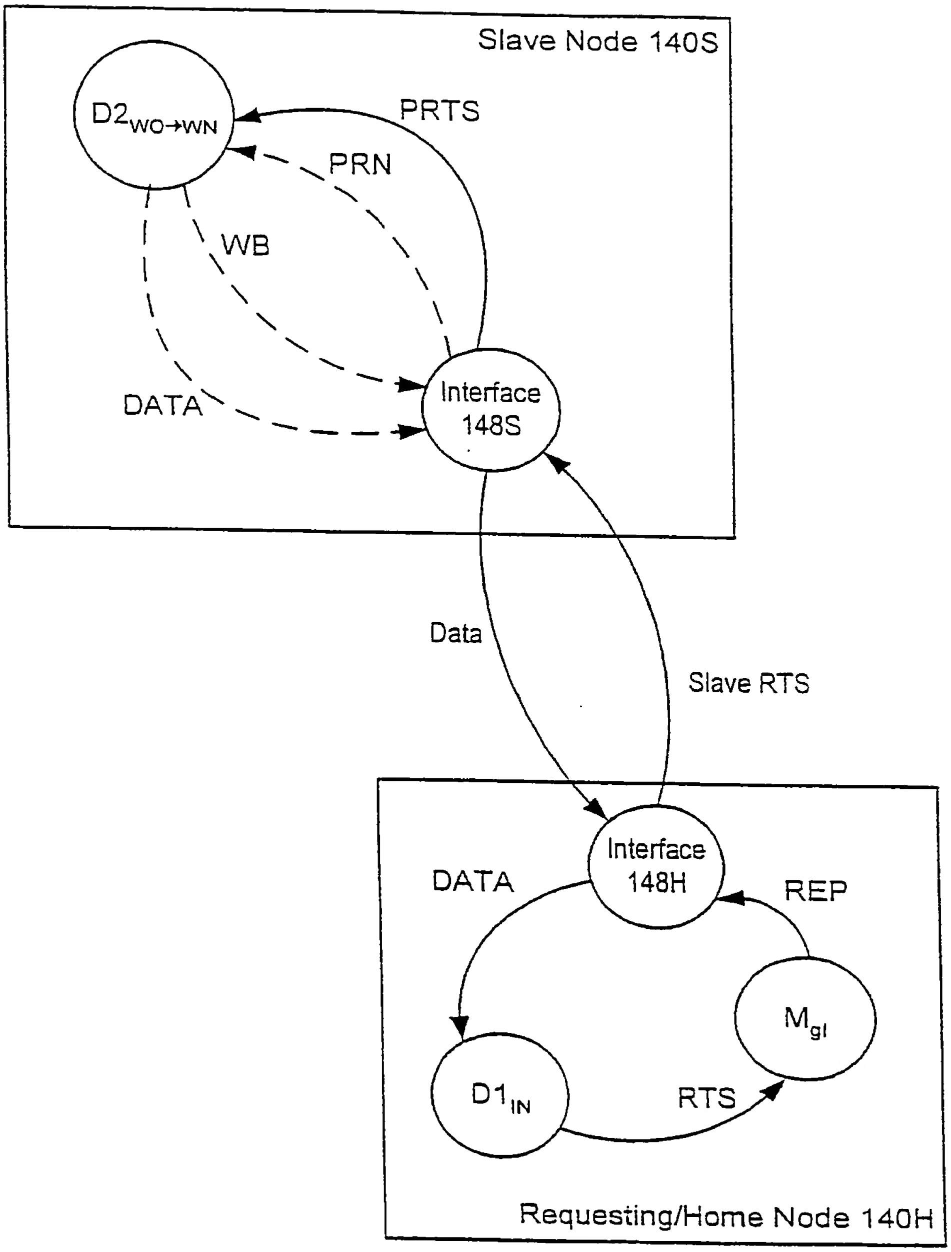

Slave Node 140S
$D2_{WO \rightarrow WN}$
PRTS
PRN
WB
DATA
Interface 148S
Data
Slave RTS
Interface 148H
DATA
REP
M_{gI}
$D1_{IN}$
RTS
Requesting/Home Node 140H

Fig. 37

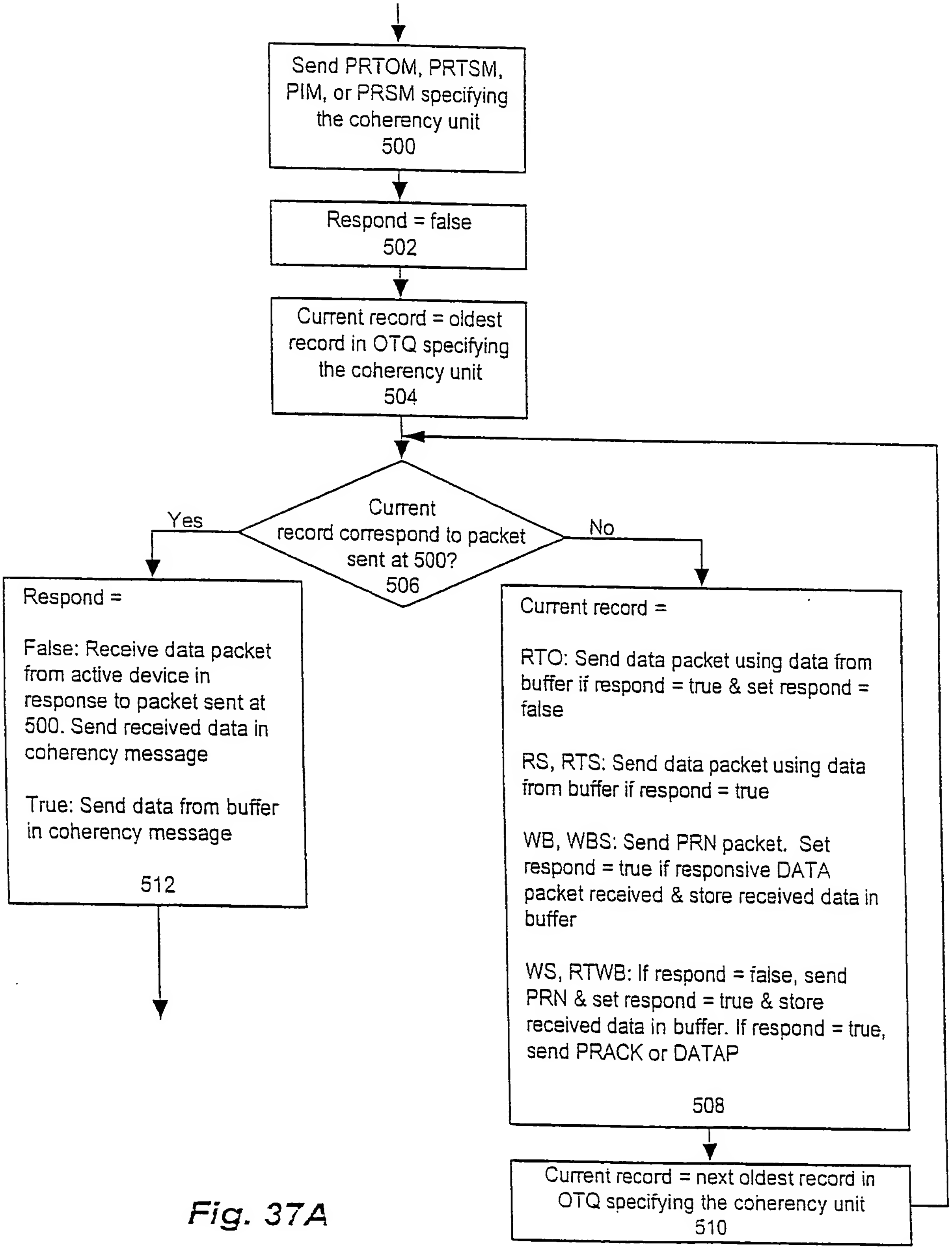

Send PRTOM, PRTSM, PIM, or PRSM specifying the coherency unit
500
Respond = false
502
Current record = oldest record in OTQ specifying the coherency unit
504
Current record correspond to packet sent at 500?
506
Yes
No
Respond =
False: Receive data packet from active device in response to packet sent at 500. Send received data in coherency message
True: Send data from buffer in coherency message
512
Current record =
RTO: Send data packet using data from buffer if respond = true & set respond = false
RS, RTS: Send data packet using data from buffer if respond = true
WB, WBS: Send PRN packet. Set respond = true if responsive DATA packet received & store received data in buffer
WS, RTWB: If respond = false, send PRN & set respond = true & store received data in buffer. If respond = true, send PRACK or DATAP
508
Current record = next oldest record in OTQ specifying the coherency unit
510

Fig. 37A

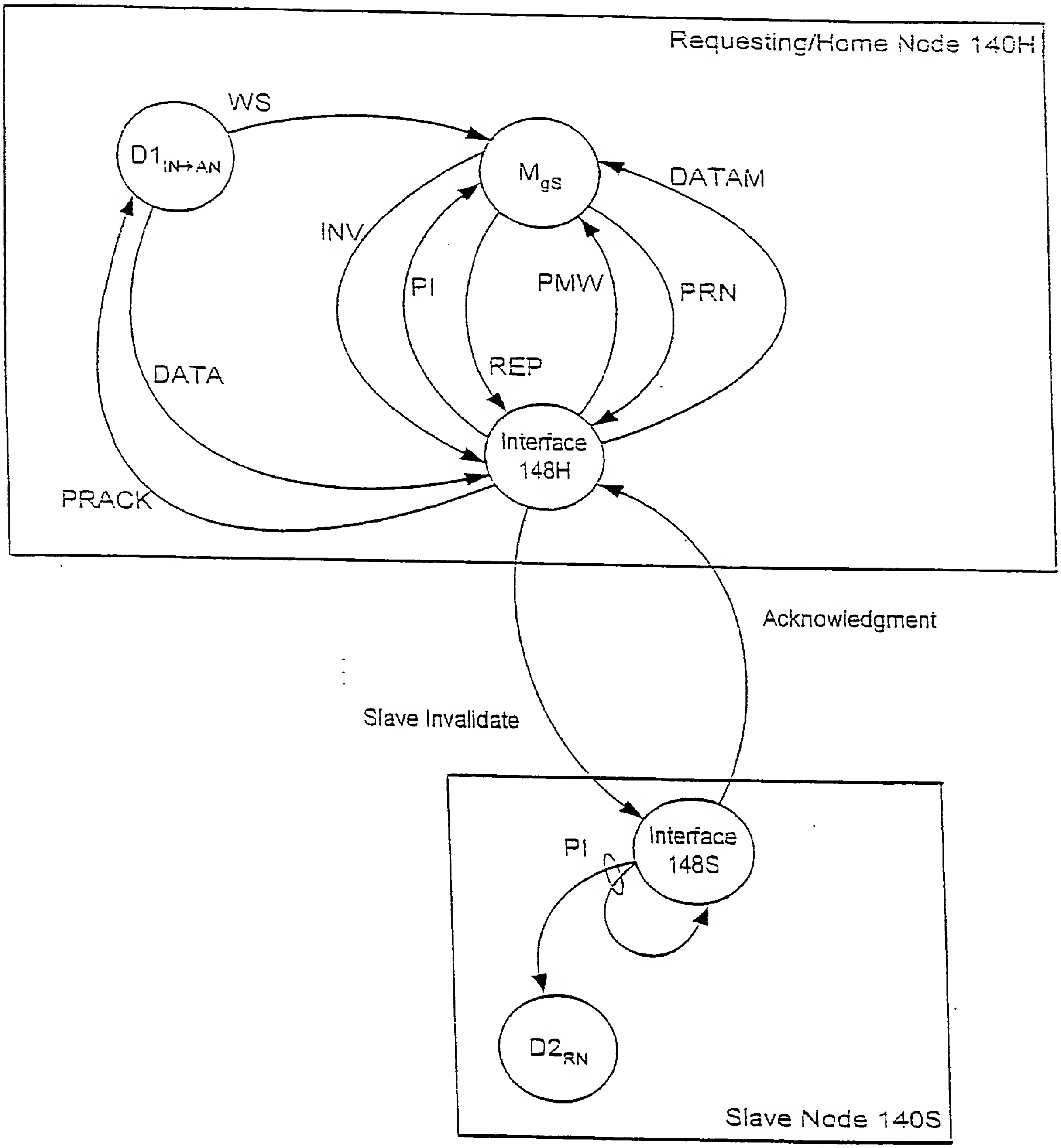

Requesting/Home Node 140H
WS
$D1_{IN \rightarrow AN}$
M_{gS}
DATAM
INV
PI
PMW
PRN
REP
DATA
Interface 148H
PRACK
Acknowledgment
Slave Invalidate
PI
Interface 148S
$D2_{RN}$
Slave Node 140S

Fig. 38

Packet Type	Full Name	Description
RWB	Remote WB	Request sent from an active device in a multi-node system to an interface in order to initiate a WB transaction
RWBS	Remote WBS	Request sent from an active device in a multi-node system to an interface in order to initiate a WBS transaction
RWS	Remote WS	Request sent from an active device in a multi-node system to an interface in order to initiate a WS transaction

Fig. 39

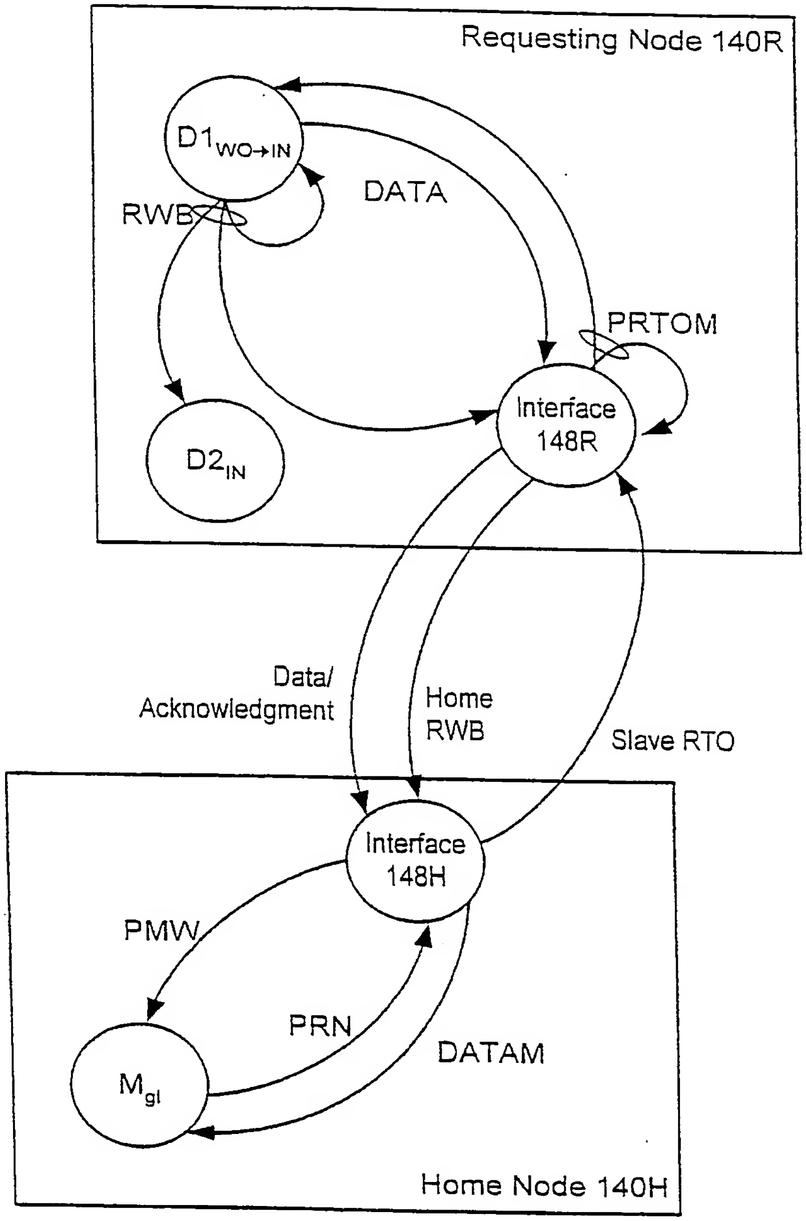
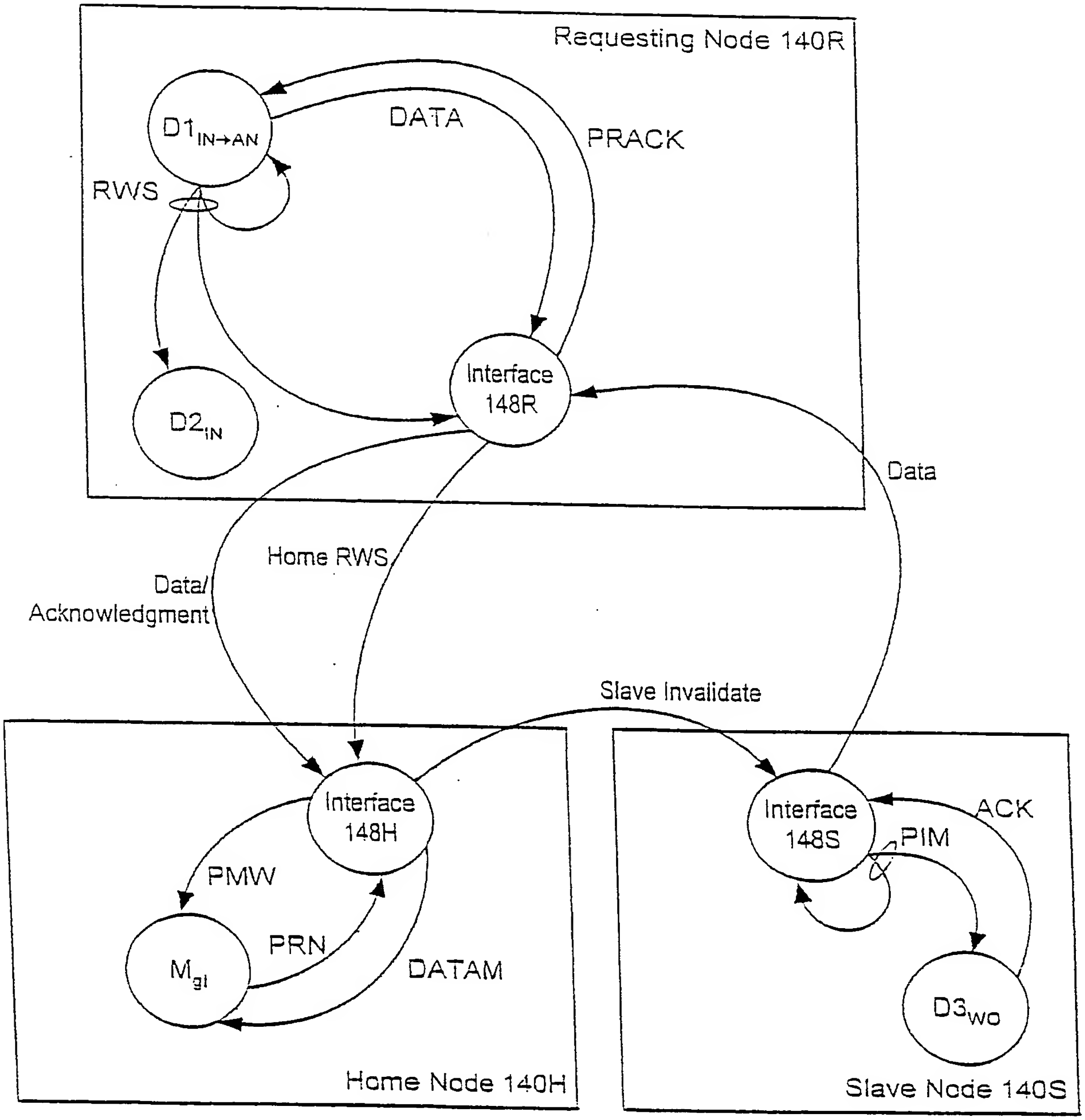

Requesting Node 140R
D1WO→IN
DATA
RWB
PRTOM
Interface 148R
D2IN
Data/ Acknowledgment
Home RWB
Slave RTO
Interface 148H
PMW
PRN
DATAM
Mgl
Home Node 140H

Fig. 40



Requesting Node 140R
$D1_{IN \rightarrow AN}$
DATA
PRACK
RWS
$D2_{IN}$
Interface 148R
Data
Home RWS
Data/ Acknowledgment
Slave Invalidate
Interface 148H
PMW
M_{gl}
PRN
DATAM
Home Node 140H
Interface 148S
ACK
PIM
$D3_{WO}$
Slave Node 140S

Fig. 41